

# Public Utilities

*FORTNIGHTLY*

Volume 59 No. 5



February 28, 1957

## WILL ATOMIC POWER SET THE REAL PARTNERSHIP PATTERN?

*An Interview with Eugene M. Zuckert*

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## Atomic Energy and Freedom of Enterprise

*By John D. Garwood*

« »

## Electric Power Serves the Army

*By C. E. Zedaker, Jr.*

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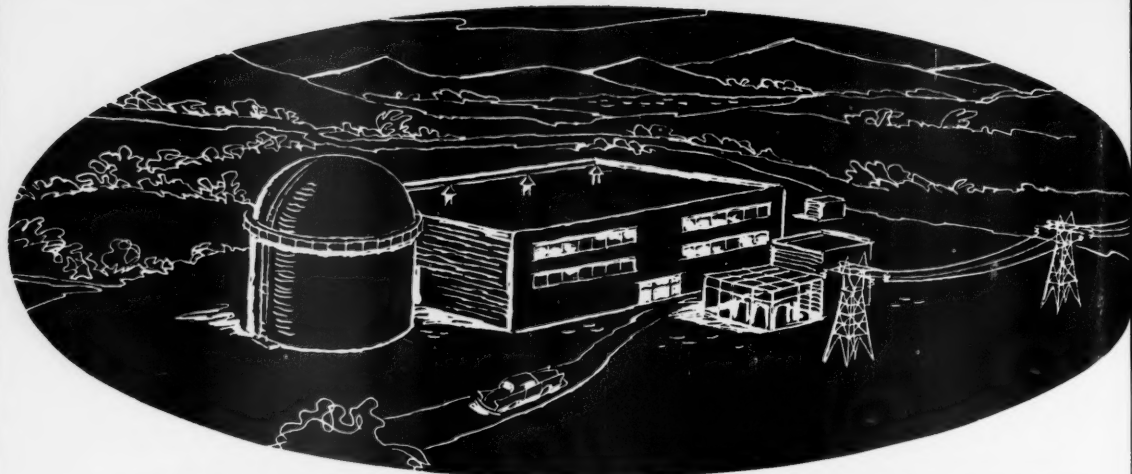
## Does Congress Have a Government Power Mandate?

*By Kenneth McCord*

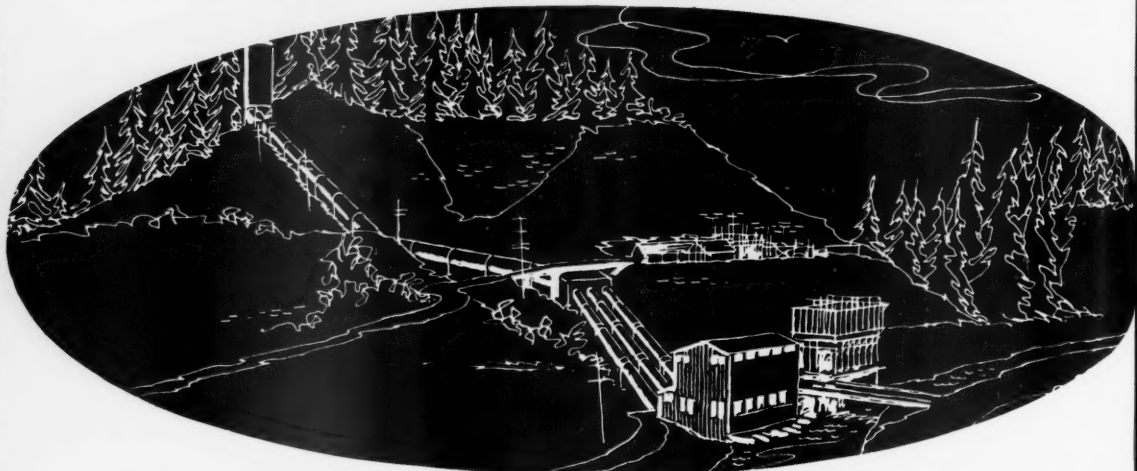
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## The Uses of Solar Energy

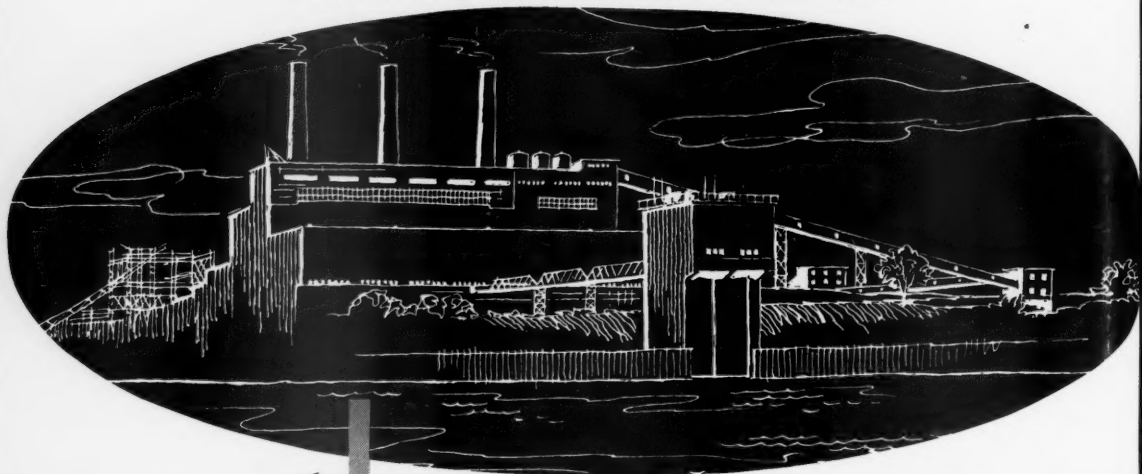




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# Public Utilities

## FORTNIGHTLY

VOLUME 59

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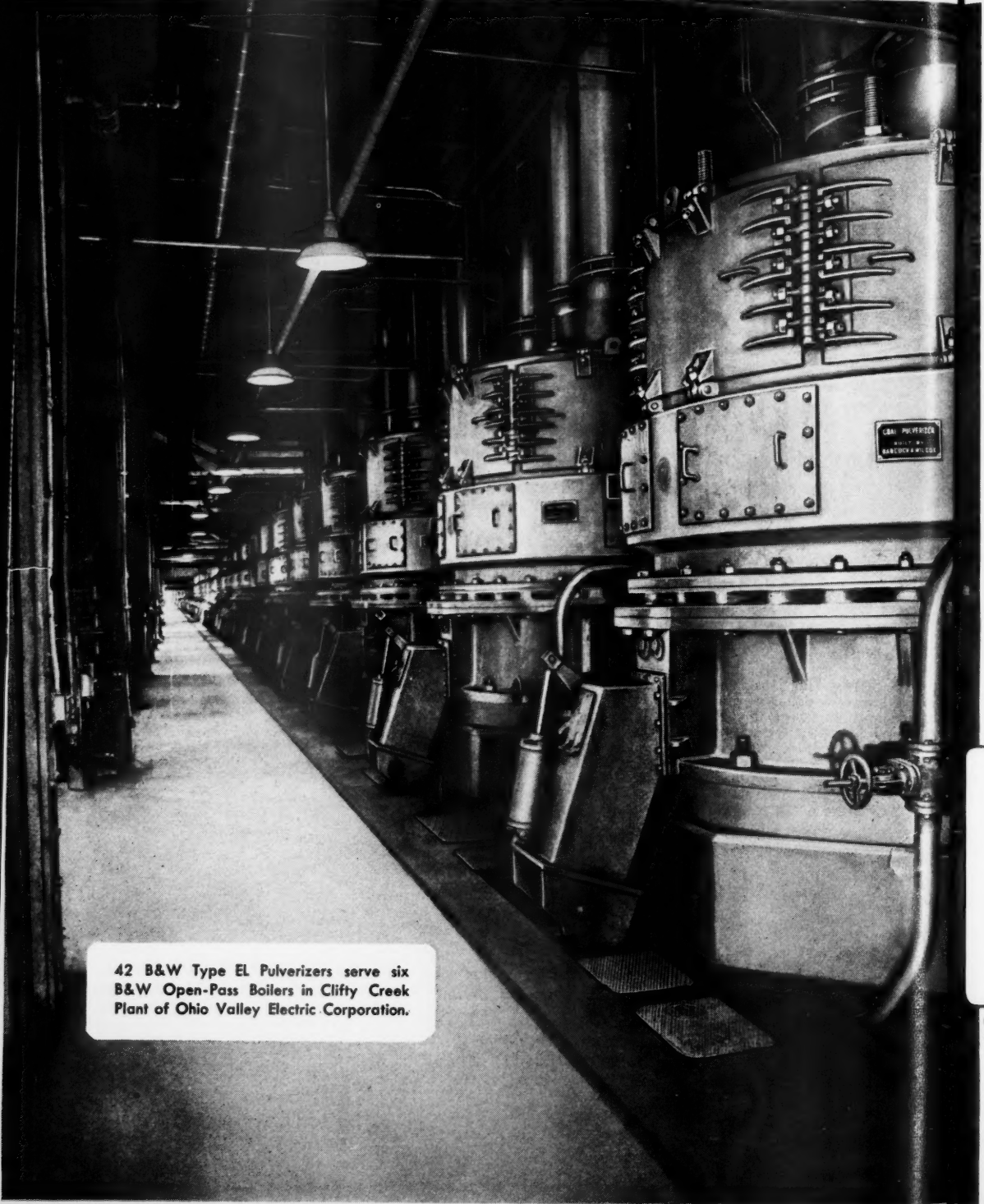
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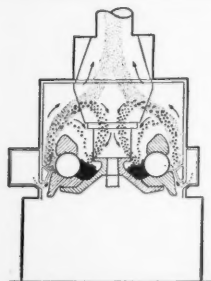
Accessibility for all normal maintenance makes it

simple, quick, safe and low-cost. Adjustments are easily made while the unit is in operation. Using only clean primary air supplied under pressure, fan maintenance is substantially reduced and fuel piping is greatly simplified. Also, with the pulverizer acting as its own distributor, no special distributing devices are needed. Grinding elements are of special alloy material. The last two years or more on eastern coals and at least one year on midwestern coals.

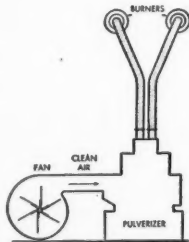
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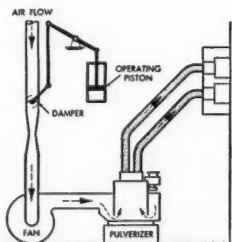
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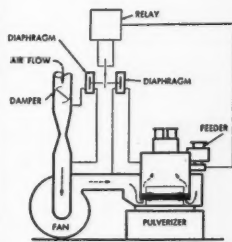
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# Pages with the Editors

MANY of us have seen Walter Disney's dramatic simplification of atomic fission and how it promises to revolutionize virtually every branch of major industry in some way or another. Using the familiar and delightfully animated cartoon form, Disney cast the whole problem in typical fairy tale dress of his other creations by recalling the familiar tale from the "*Arabian Nights*" about the genie in the bottle.

THE poor Arabian fisherman, it will be remembered, was threatened with death because of his kindly service in releasing the genie from the bottle. He managed to survive only by the use of very astute judgment and bargaining power. When he tricked the genie to get back in the bottle before he had destroyed the fisherman, his release was then conditioned upon promises of magical benefits. And that is what our modern scientific fishermen, who have dragged up the atomic genie in the bottle, are trying to work out. They are striving to utilize the benefits without releasing any of the destruction of the genie of atomic energy. It is not going to be easy. There are many dangers in atomic development.

THE opening article in this issue points out that businessmen who work with



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WALTER A. SHEAD

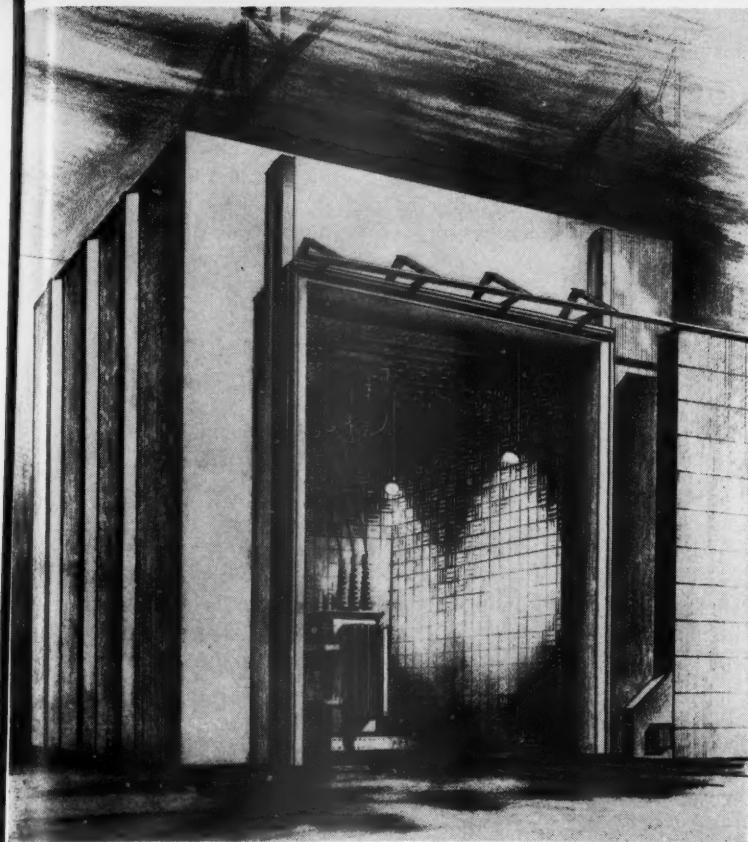
atomic energy are going to have to get used to the idea of operating in a field more regulated than ever before. Of course, government regulation will be nothing new to electric utility company officials, who are seeking to operate under licenses from the Atomic Energy Commission in building nuclear reactors for commercial power supply. They have lived with commission regulation for years. But even public utility management people who are very familiar with regulation by public service commissions will find that they must co-operate under new and closer controls by the AEC.

THIS is probably necessarily so because of the nature of a development which started out as a government monopoly and is still largely in that category. Private industry will be heavily dependent upon government for technical information, laboratory research, engineering guidance, and basic nuclear fuels. There will also be considerations of by-products, financing, and supplementary insurance. But all this need not preclude a progressive and imaginative approach by private enterprise.

THE basis for this opening article is an interview with EUGENE M. ZUCKERT, former member of the Atomic Energy Com-



C. E. ZEDAKER, JR.



## VERY "HUSH. HUSH"

The new Westinghouse Anechoic Vault recently dedicated at its Sharon, Pennsylvania transformer laboratory is equivalent in size to a five-story building, with walls five feet thick and a 150-ton door.

As Westinghouse stated—"Here the biggest transformer to be built in the foreseeable future will be tested for noise reduction."

Engineers at Commonwealth Associates Inc. were responsible for the structural and acoustical engineering design for this Westinghouse project.

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## PAGES WITH THE EDITORS (Continued)

mission, by Walter A Shead, editor of *The Atomic Energy Guideletter*. Mr. ZUCKERT is consultant to *The Atomic Energy Guideletter* and coauthor with Arnold Kramish of a book published late in 1956, entitled "*Atomic Energy for Your Business*." Mr. Shead has been a newspaperman for forty-five years. He has served on the staff of the *Indianapolis News* and the *Indianapolis Times*. In 1946 he joined the Western Newspaper Union (a syndicate of small-town newspapers). It was as Washington correspondent for some 4,000 small-town newspapers that Mr. Shead covered the first bomb drop at Bikini atoll in the Pacific. He started his present specialized newsletter venture in 1954 when the Atomic Energy Act became law.

\* \* \* \*

A NOVEL approach outlining the function of private enterprise in the field of atomic energy in the future has been taken in the article beginning on page 294 by Dr. JOHN D. GARWOOD, professor of economics at Fort Hays Kansas State College. The problems and by-products of this development are so vast and complicated, and the time is so short in which the right answers must be arrived at and practical programs worked out, that creative thinking of a managerial type must go into high gear as of now. Unless it does, private enterprise may find it difficult to hold its proper place in the future.

Dr. GARWOOD has taught in Iowa and



KENNETH MCCORD

took his master's degree at the University of Wisconsin. He has also done graduate study at the University of Louisiana, the University of Southern California, and the University of Colorado. He earned his doctor's degree (PhD) at the last-named institution.

\* \* \* \*

C. E. ZEDAKER, JR., whose article on Uncle Sam's Army as an electric utility customer begins on page 301, was born in 1903 at Red Springs, North Carolina, of American Scotch-Dutch parents. Entering North Carolina State College in 1922, he was graduated in 1926 with a BS degree in electrical engineering. He has served in the past with Duquesne Light Company of Pittsburgh, Carolina Power & Light Company, Pennsylvania Power & Light Company, and in 1941 he joined the Federal Power Commission and was loaned to the Office of War Utilities of the old War Production Board. He is at present chief of the electric branch of the utilities operating division of the Office of Chief of Engineers.

\* \* \* \*

THE article beginning on page 305 describes claims which have been made by Senators and Representatives from the Pacific Northwest that the recent election resulted in a "mandate" for more federal power development. People from other areas unfamiliar with the local facts may well be impressed by these claims, based on the election of certain Congressmen. But is there such a "mandate" actually? Can it be proven on the basis of the election last November? KENNETH MCCORD, on the staff of the Washington Water Power Company, Spokane, has analyzed the issues and the background of certain elections which are alleged to have resulted in the so-called "mandate," and his findings and conclusions give a very contrary impression.

THE next number of this magazine will be out March 14th.

*The Editors*



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# Coming IN THE NEXT ISSUE

(March 14, 1957, issue)



## **THE CAPITALIZATION OF INTEREST**

Interest during construction has usually been allowed as part of the cost of utility property, but this article by John H. Bickley raises and discusses some thoughtful questions as to the allowance when money is not borrowed for construction purposes. There are probably differences of opinion on the question, but presentation of these views will be found most provocative. Mr. Bickley's background has been in the field of both regulation and management. He was formerly on the staff of the Wisconsin Public Service Commission and the Federal Communications Commission, and later the executive of a middle western transit company. He is now a consultant in Skokie, Illinois.

## **A SOUND STOCKHOLDER RELATIONS PROGRAM**

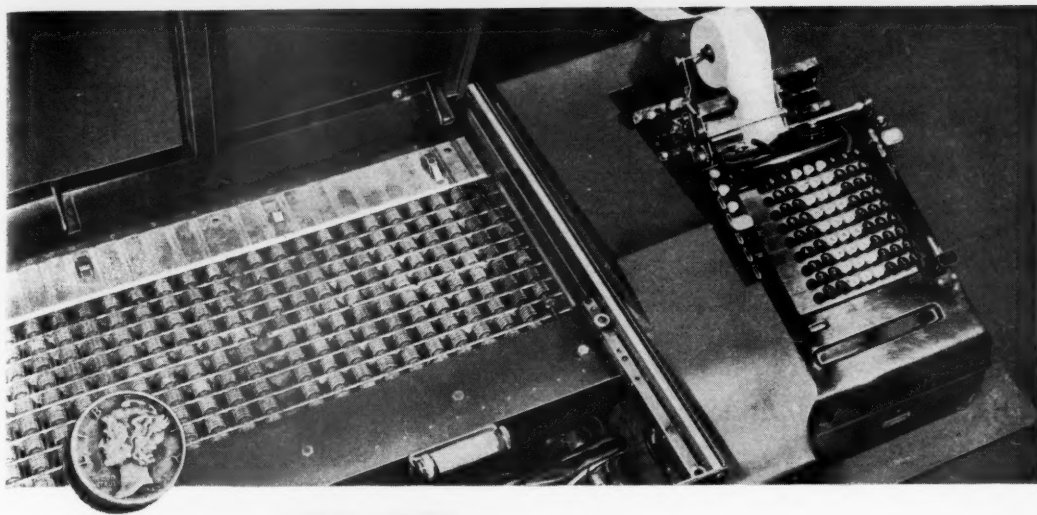
This article will be found a valuable addition to stockholder relations literature. While many public utility companies have maintained stockholder relations along lines suggested by Hal D. Steward of McLean, Virginia, management people will be interested in checking their own practices against this author's ideas. It is a practical "how-to-do" program setting up steps from the start of the idea to the final determination of the limitations. It raises such questions as who should be responsible for final policy decisions regarding stockholder relations programs and goes to the heart of the problem of what actually can be done, and how to create and maintain the friendship and co-operation of the stockholder.

## **SHOULD GOVERNMENT POWER BE TAXED?**

This article presents interesting questions regarding the taxation of the Tennessee Valley Authority or payments in lieu of taxation and the untaxed distribution organizations. The author is Professor Franklin H. Cook of the Pennsylvania State University. Here we have a power system primarily supplying energy to the federal government. But now we find municipalities and nongovernment consumers claiming some sort of equity in the system by reason of the rates they have paid in the past. Where will ownership and control of TVA vest if and when TVA management repays all of its capital investment to the United States government? What practical course could be taken to eliminate the recurrent and vexatious criticism if TVA enjoys unequal advantages in the field of tax obligations?



**Also . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.**



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# Remarkable Remarks

*"There never was in the world two opinions alike."*

—MONTAIGNE

JOHN S. COLEMAN  
*President, Chamber of Commerce of the United States.*

"Where the government intrudes into the private sphere, we must fight persistently against it. Where, however, government action is necessary, let us recognize it and be eager to participate in planning and administering a national policy."

EDITORIAL STATEMENT  
*The (Baltimore) Sun.*

"Outlawing of the so-called Communist party is a proper denial of the uses of our institutional machinery for conspiracy against it, and as a technique for furthering activities not dependent or reliant on its lasting use. Such outlawry is not a denial of free expression."

T. S. PETERSEN  
*President, Standard Oil Company of California.*

"The foremost objective of management is to balance the conflicts and differences of interested groups, to the end that business will be carried on so that all of these groups receive the maximum benefit; and that none enjoys an advantage at the expense of another."

DWIGHT D. EISENHOWER  
*President of the United States.*

"Our population grows. Commerce crowds our rivers and rails, our skies, harbors, and highways. Our soil is fertile, our agriculture productive. The air rings with the song of our industry—rolling mills and blast furnaces, dynamos, dams, and assembly lines—the chorus of America the bountiful."

M. S. RUKEYSER  
*Columnist.*

"This injection of emotional yardsticks into the rugged field of competitive business is a breeder of misconceptions. It would be hazardous indeed for the 'common man' to invest his funds on the basis of such illusory generalizations. In today's world of business, neither bigness nor littleness is a guaranty of success."

EDITORIAL STATEMENT  
*Industrial News Review.*

"It's time we lost some illusions. We're going to pay for government in business, either through increased taxes or greater debt and depreciated money, and in either case through decreased freedom and opportunity for the individual citizen. Federal power is no gift horse and it is time we looked it squarely in the mouth."

W. ALTON JONES  
*Chairman of the board, Cities Service Company.*

"There is only one source to which industry can look for capital assistance . . . and that is the savings of thrifty people. It can convert these savers into investors only by offering a living wage for money hired out. This is a point which ought to be kept in mind by those who formulate the nation's tax policies, because taxes which penalize progressive and prosperous enterprises—and doubly penalize their investors—dry up the sources of equity capital. Ultimately that must mean a loss in tax revenues far greater than anything gained by excessive taxing now."





From a central power control point in Birmingham, Ala., Southern Services supervises the output of 25 generating plants like this one at Jordan Dam. Bell System teletypewriters speed the orders calculated on the "Early Bird" computer (inset).

## How Bell System teletypewriter works with Southern's computer

Seated at the "Early Bird" computer in Birmingham, Ala., headquarters of Southern Services, Inc., the power co-ordinator transmits generating orders for 25 plants—by Bell System teletypewriter.

This close supervision contributes to more economical power supply to consumers in Alabama,

Georgia, Mississippi, Florida. Power output, cost of power and transmission losses are figured continuously by the analogue computer. When load adjustments are necessary, Southern's co-ordinator sends the orders by private line teletypewriter.

Bell System service gives Southern speed, accuracy and depend-

ability. And teletypewriter communications provide a day-to-day record of orders transmitted.

. . . . .

*Bell System private line service can make communications faster and more efficient for you. Call your Bell Telephone representative. He will be glad to study your needs.*

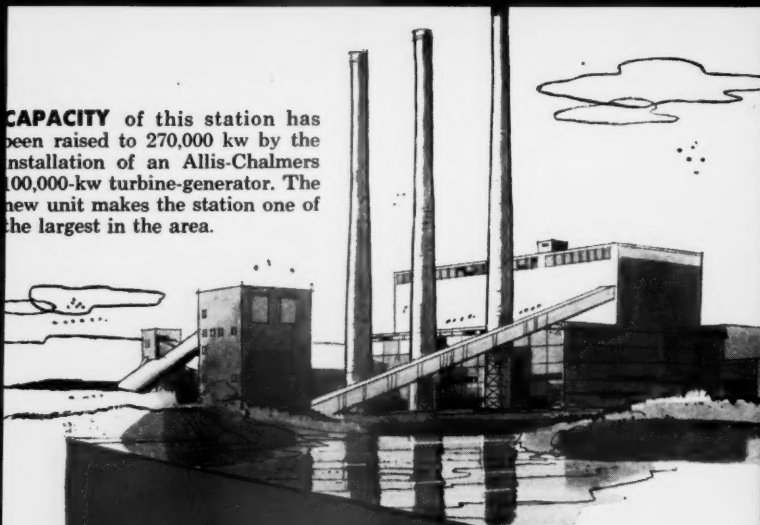


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**CAPACITY** of this station has been raised to 270,000 kw by the installation of an Allis-Chalmers 100,000-kw turbine-generator. The new unit makes the station one of the largest in the area.



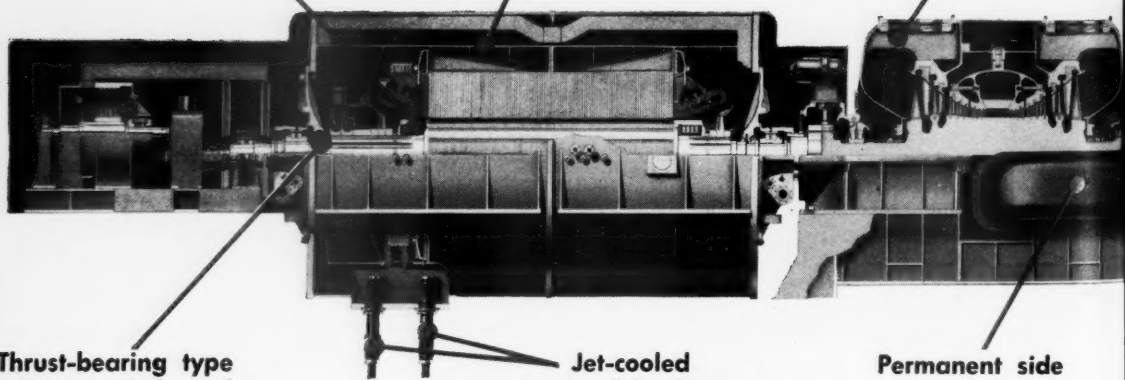
# Here's **MORE** Power



Supercharged  
cooling of rotor

Symmetrical stator with  
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Fabricated steel  
low pressure casing



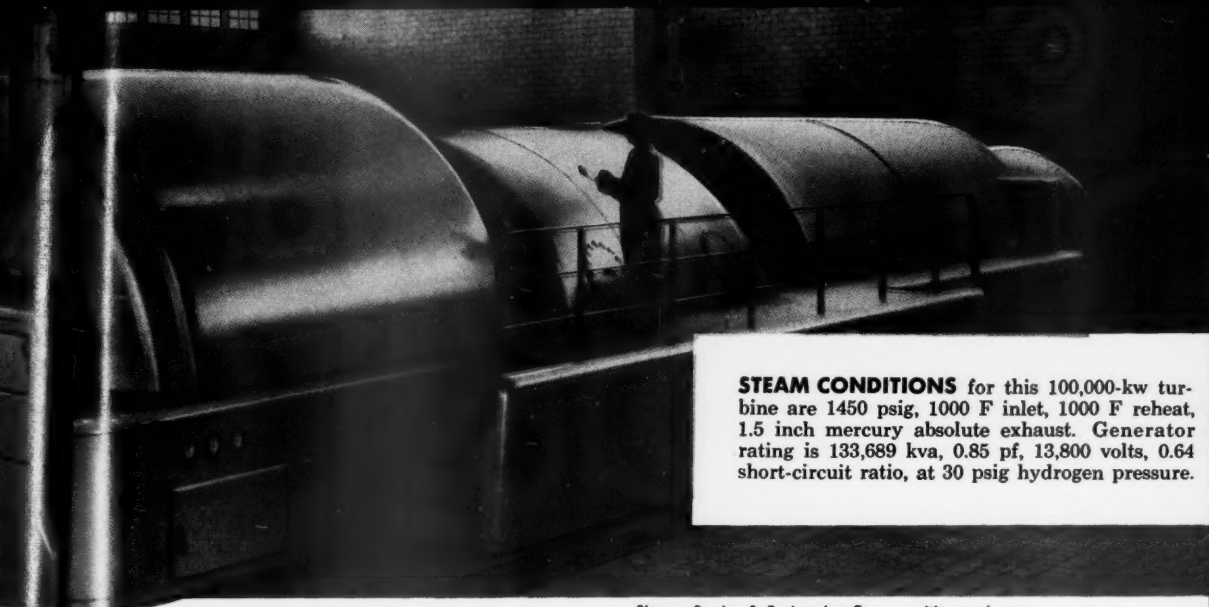
Thrust-bearing type  
hydrogen shaft seals

Jet-cooled  
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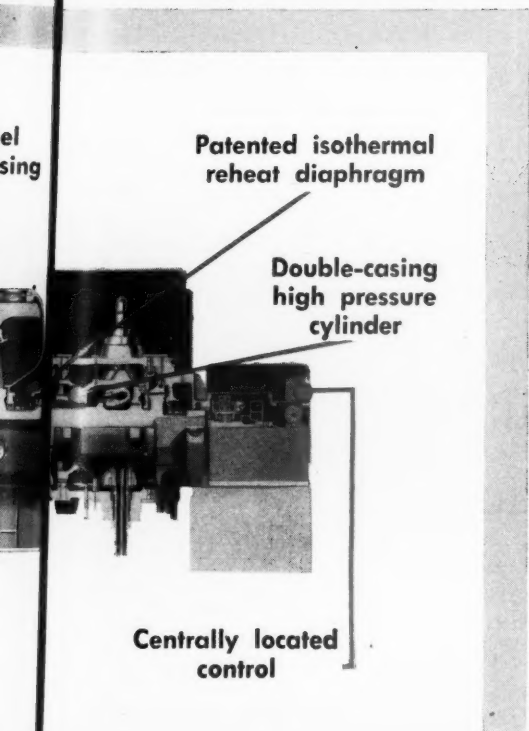
# ALLIS-CHALMERS



**STEAM CONDITIONS** for this 100,000-kw turbine are 1450 psig, 1000 F inlet, 1000 F reheat, 1.5 inch mercury absolute exhaust. Generator rating is 133,689 kva, 0.85 pf, 13,800 volts, 0.64 short-circuit ratio, at 30 psig hydrogen pressure.

Pioneer Service & Engineering Co., consulting engineers

# rPioneering



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Double-casing high pressure cylinder

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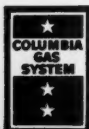
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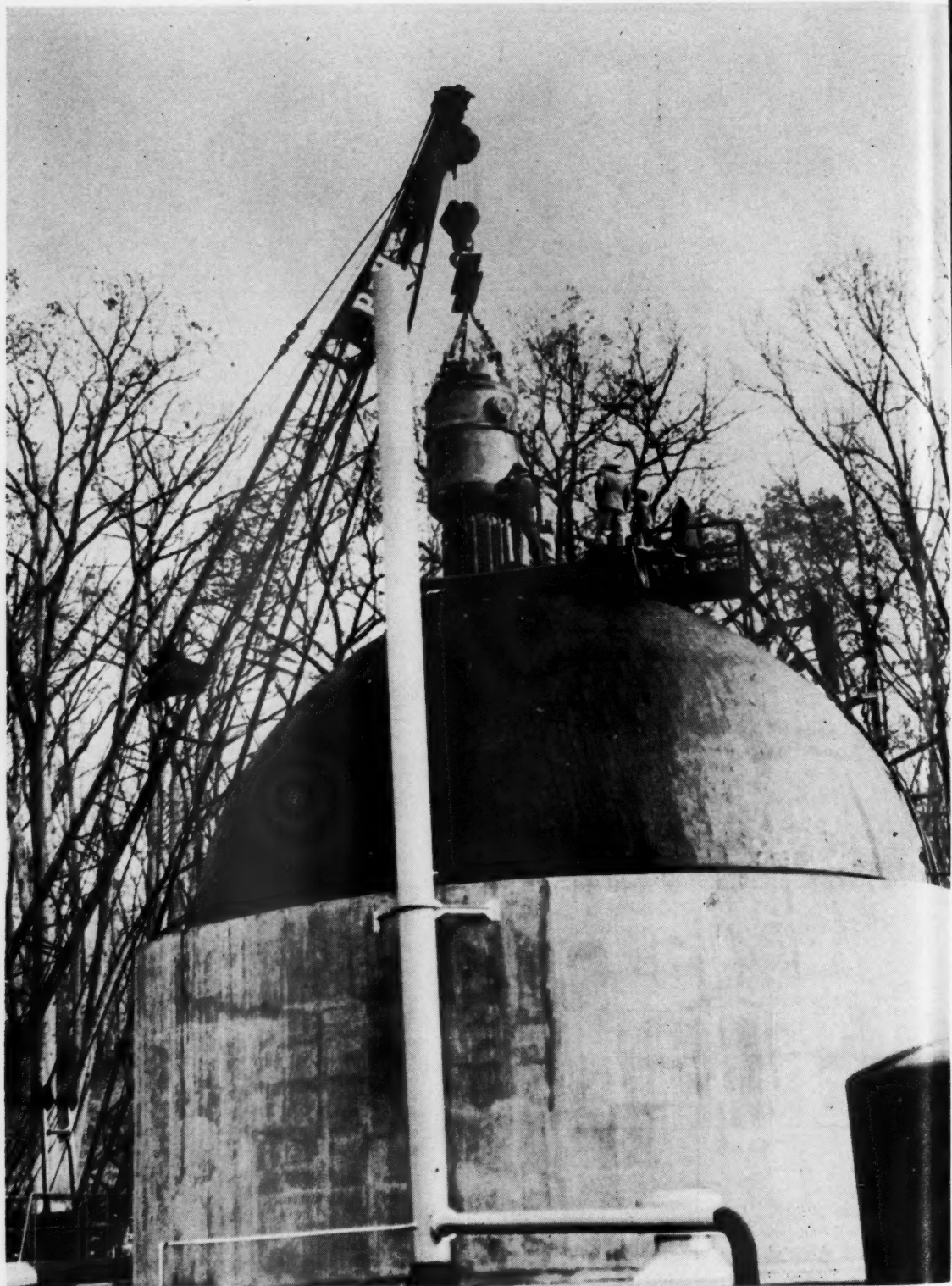


# UTILITIES

## *A.l.m.a.n.a.c.k*

### FEBRUARY-MARCH

<b>Thursday—28</b> <i>Pacific Coast Electrical Association, Business Development Section, begins annual meeting, San Francisco, Cal.</i>	<b>MARCH Friday—1</b> <i>American Water Works Association, Southeastern Section, will hold annual meeting, Charleston, S. C. Mar. 17-20. Advance notice.</i>	<b>Saturday—2</b> <i>American Society of Mechanical Engineers will hold gas turbine conference, Detroit, Mich. Mar. 18-21. Advance notice.</i>	<b>Sunday—3</b> <i>Southern Safety Conference begins, Richmond, Va.</i>
<b>Monday—4</b> <i>National Rural Electric Cooperative Association begins annual meeting, Chicago, Ill.</i>	<b>Tuesday—5</b> <i>Annual Conference on High-speed Computers begins, Louisiana State University, Baton Rouge, La.</i>	<b>Wednesday—6</b> <i>American Water Works Association, Illinois Section, will hold annual meeting, Chicago, Ill. Mar. 20-22. Advance notice.</i>	<b>Thursday—7</b> <i>Gas Appliance Manufacturers Association begins automatic gas range conference, New York, N. Y.</i>
<b>Friday—8</b> <i>Street Tree and Utility Conference ends, Cleveland, Ohio.</i>	<b>Saturday—9</b> <i>Edison Electric Institute, Industrial Relations Committee, will hold meeting, New York, N. Y. Mar. 21. Advance notice.</i>	<b>Sunday—10</b> <i>New England Gas Association will hold annual meeting, Boston, Mass. Mar. 21, 22. Advance notice.</i>	<b>Monday—11</b> <i>National Association of Corrosion Engineers begins meeting, St. Louis, Mo.</i>
<b>Tuesday—12</b> <i>Oklahoma Utilities Association will hold annual convention, Tulsa, Okla. Mar. 28, 29. Advance notice.</i>	<b>Wednesday—13</b> <i>Texas Telephone Association will hold annual convention, San Antonio, Tex. Mar. 28, 29. Advance notice.</i>	<b>Thursday—14</b> <i>Electric Companies Public Information Program, Steering Committee, begins meeting, New York, N. Y.</i>	<b>Friday—15</b> <i>Engineers Joint Council ends 5-day nuclear engineering and science conference, Philadelphia, Pa.</i>



*U. S. Army photograph*

**Reactor Vessel Being Lowered at Fort Belvoir, Virginia**

*The Army's package power reactor is being readied to receive the critical elements.*

# Public Utilities

## FORTNIGHTLY

VOL. 59, No. 5



FEBRUARY 28, 1957

## Will Atomic Power Set the Real Partnership Pattern?

*Private industry will be heavily dependent upon government for technical information, laboratory research, engineering guidance, and basic nuclear fuels. There will also be considerations of by-products, financing, and supplementary insurance. But all this need not preclude a progressive and imaginative approach by private enterprise.*

An Interview with  
EUGENE M. ZUCKERT\*  
As Told to Walter A. Shead

ATOMIC energy is a unique field. It not only beckons to new industries, but holds out new dimensions to many existing industries. In some phases, for example, in the use of by-products such as radioisotopes, growth has been phenomenal—something like 500 per cent over the past four or five years; tremen-

dous strides have been made by metallurgists, engineers, and chemists in providing materials—new metals—other new materials have been created as a process of irradiation, and yet in the most important field, the development of commercial nuclear power, there has been a seeming apathy, or a slowdown in reaching the goal of a nuclear reactor in operation which will produce electric power in

\*Former member, Atomic Energy Commission. For additional personal note, see "Pages with the Editors."

## PUBLIC UTILITIES FORTNIGHTLY

commercial quantities, either in competition with, or noncompetitive with, coal and other conventional fossil fuels. Many reasons are offered, but the fact remains that fourteen years after the discovery of fission there is still no commercial scale nuclear power plant in operation in the United States.

This is all the more singular, it seems to me, when it is known that the Atomic Energy Commission is not only the world's foremost exponent of nuclear power, but it is itself the world's largest user of electric power from conventional fuels and falling water plants. To find the answer to this apparent apathy and to other questions in this unique industry, I sought out the most knowledgeable man I know in Washington, D. C.

**T**HIS man is Eugene M. Zuckert, former member of the Atomic Energy Commission, former Assistant Secretary of the Air Force, and one of the foremost consultants on atomic energy in the nation's capital.

Mr. Zuckert is extremely successful as a nuclear consultant. He knows his subject, not as a scientist or physicist, but as a businessman who has had wide experience in close association with government, with the atomic energy industry, and with American industry itself which he represents in the rôle of adviser and consultant, from public utilities to radioisotopes. His views are forthright and not always doctrinaire, but eminently sound in that they are tempered by the facts of life as he sees them in relation to atomic energy. Here are some of his views:

"Atomic energy presents to science and industry the most exciting challenges. For atomic energy has the hottest and coldest

temperatures; it has the most devastating corrosion problems to fight against; its radiation problem imposes provocative and ingenious measures for remote control of large-scale and delicate processes. On the one hand we have metallurgists racing to develop a noncorrodible fuel element, while our chemists are asked to dissolve this noncorrodible fuel element and process it at minimum cost, as AEC Commissioner Libby has pointed out.

"Private industry, and this includes both public and private electric utilities, will make progress and prosper in atomic energy to the extent it can co-operate with, and help to shape a reciprocal atomic energy relationship with government.

**"A**MERICAN business must get used to the idea of working in a regulated field. For atomic energy must have a high degree of government regulating activity. Electric utilities already work under regulation, both by states and the federal government. But in this unique industry there is nothing more unrealistic than the idea of private industry running with the ball on atomic energy under a private enterprise system. Atomic energy is going to take government money, more than we presently plan to spend. It is going to take government administration and a good slice of the technical direction; it is going to take government regulation on safety under a series of licenses and some continuing regulation on security; moreover private industry is going to be dependent even on government for the very fuel it burns in privately owned nuclear plants.

"So the circumstances under which private industry gets its information, its fissionable source material; its construction and operating licenses; its access permits;



## WILL ATOMIC POWER SET THE REAL PARTNERSHIP PATTERN?

**Q** "THE atomic energy industry may make present-day products, many of them, as obsolete as a buggy whip. It is indeed an industry of contrast, unique in its own right. It already is revolutionizing industrial processing and production lines in many industries with the use of noncontact gauges holding thicknesses and tolerances to specifications ranging down to ten-thousandths of an inch, from carbon paper to steel. What is needed greatly is more and more education, for the horizons are limitless and in the years ahead there will be more and more drastic changes in whatever line of industry you are engaged."



its safety and security regulations will require working in a partnership with government.

"Most important, in my view, is the fact that private industry is heavily dependent upon government for laboratory research, for prototype research in the search for the most economical, the most efficient type of nuclear reactor for the production of electric power. And this will hold true for several years to come.

**"T**HIS is so, I believe, because private industry in this country cannot be expected to risk stockholder capital to the degree necessary to compete with the totally nationalized atomic power programs of England and Russia. In those nations the goals are the maximum amount of kilowatts at the earliest possible date because of a shortage of electric power. In the United States, we are not pressed now by a power shortage, and so in the race for world leadership in this field the United States government, as represented by the Atomic Energy Commission, must carry most of the development load.

"This is not to preclude an aggressive and imaginative approach by private enterprise, but the bulk of the cost must be

borne by the government in this competitive race with other nations of the world. Private industry can assume a part of this load—and has pledged itself to do so, and, as a matter of fact is building new research laboratories, pooling the resources of several companies in many instances. But this research is pre-eminently in the field of industrial application of atomic energy to industrial processes and materials.

"I pointed out some time ago before the Industrial Nuclear Technology conference at Chicago that the AEC should be given a congressional mandate to build at least 10 power reactors abroad within the next four years and 40 additional reactors for power within the following six years. I believe that unless this authority is given under an unmistakable order from the Congress, plus the money to do the job, there is danger: (1) that the United States will lose its export market for atomic power reactors, and (2) that the atoms-for-peace program, which is more phrase making than action, stands in danger of being submerged by other programs in the Department of State and the International Cooperation Administration, with all the entanglements, procedures, and inconsistencies which generally apply to our foreign

## PUBLIC UTILITIES FORTNIGHTLY

aid program. So it seems to me that it is extremely shortsighted for business to adopt a policy to obstruct an aggressive reactor building program on the sole basis that the government should not be doing the job.

**"I**N this connection I would like to point out the findings of the civilian panel on the peacetime uses of atomic energy which was named by the Joint Committee on Atomic Energy to report on the status of atomic energy. This committee last February said:

The group felt that a mass market for power reactors would probably not develop domestically for about ten or fifteen years, and that a substantial export market could provide an important bridge between now and the time the domestic market will develop . . . the consensus showed that the foreign market would probably be more important initially than it would a decade or so hence, inasmuch as by then foreign producers will probably have entered the reactor manufacturing business in a substantial way and will be competing in the world market with United States producers.

"Another field where the atomic power program runs into a roadblock is in the field of third-party insurance. Private industry cannot be expected to take the tremendous expenditure of risk capital necessary without adequate protection in the insurance field. And here is another instance of a government-private industry partnership; since the private insurance industry is unable to provide adequate public liability insurance for a nuclear reactor, the government should step in and

make up the difference, over and above the limit provided by private firms. It is my conviction that had not private industry adopted the obstructionist tactics which it did against passage of a specific power reactor program as outlined in the Gore Bill during the last session of Congress, a government insurance indemnity law would now be on the statute books."

**M**R. ZUCKERT is an enthusiastic proponent of the use of nuclear reactors for purposes other than power. For instance, he was one of the first to say that heat from nuclear reactors will eventually be used directly in industrial processing. And although disclaiming any satisfactory basis for his feeling, he is a firm believer that heat from nuclear radiation will be translated directly into electrical current, eliminating the steam cycle.

"As of now," he said, "atomic energy is merely being used as a substitute for fossil fuels, such as coal and oil, for heating water to make steam which turns our electric dynamos. I believe, although the solution is not now apparent, that in the not too distant future, scientific know-how will come up with the technique for translating this tremendous radiation from a uranium source fuel directly into electrical energy, without passing through the steam cycle."

Asked for specific examples of early outlets for atomic power, he said:

"South America is one of the most fertile fields for the advancement and development of atomic energy. The Atomic Energy Commission now has bilateral agreements with most of the South American nations applying to research reactors, and these agreements would necessarily have to be amended to include power re-

## WILL ATOMIC POWER SET THE REAL PARTNERSHIP PATTERN?

actors. But South America has only a small per cent of the known coal reserves and only about 10 per cent of the world's known oil reserves. Thus even power from conventional fuels is costly there. I believe we have a ready market on our doorstep which could be opened today, a fertile field, with United States technical help for operation and maintenance of reactors, and for use of atomic energy by-products.

"Joao Carlos Muniz, of Brazil, is president of the Atomic Energy Conference in the United Nations, which seeks to form an International Atomic Energy Agency. Some 81 nations took part in that conference, including 21 nations in South and Central America, which indicates to me that these have-not nations in the western hemisphere are vitally interested in atomic energy and that there is a real opportunity there for a United States atomic energy export market."

**S**aid Mr. Zuckert: "The atomic energy industry may make present-day products, many of them, as obsolete as a buggy whip. It is indeed an industry of contrast, unique in its own right. It already is revolutionizing industrial processing and production lines in many industries with the use of noncontact gauges

holding thicknesses and tolerances to specifications ranging down to ten-thousandths of an inch, from carbon paper to steel. What is needed greatly is more and more education, for the horizons are limitless and in the years ahead there will be more and more drastic changes in whatever line of industry you are engaged. This education should start in the high schools and continue on through the colleges and universities, right into business management offices. For if a company today accepts an order for even a valve to be used in atomic energy without knowing why, that company will be left at the post in this new technology and will continue to be just an order taker.

"The challenge to industry in developing the peacetime uses of atomic energy is tremendously exciting. However, as I pointed out in the first place, there is as yet no substitute for a government-industry reciprocal program, and there can be no substitute for a variety of management and scientific competence.

"Even then, there can be no full effectiveness without the vision, the daring, and the business judgment of top management, reinforced by the perspective given him in knowing the facts of life about the entire atomic energy program which makes it a unique industry."

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**T**HE Brazilian city of Sao Paulo is going to install a monorail transit system. It is likely that ground breaking for 60 miles of single track and 124 stations will be started soon, the Alweg Corp. of Cologne, Germany, said, but the installation will take about six years to complete. Electrical impulses keep the cars going at speeds up to 180 miles an hour. The cars carry from 120 to 150 persons. The system was adopted by the Swedish multimillionaire, Axel Wenner-Gren, who closed the deal with Vladimir de Toledo Piza, Sao Paulo transit commissioner. The city paid \$1.5 million for the system.

# Atomic Energy and Freedom Of Enterprise

*What should be the function of private enterprise in the field of atomic energy in the future? The problems and by-products of this development are so vast and complicated, and the time is so short in which the right answers must be arrived at and practical programs worked out that creative thinking of a managerial type must go into high gear as of now.*

By JOHN D. GARWOOD\*

## Introduction

LET us suppose you had lived in 1900 and somehow were confronted with the problem of seeking a solution within fifty-six years to any of the following problems:

1. To build and maintain roads adequate for use of conveyances, their operators and passengers.
2. To increase the average span of life by thirty years.

\*Professor of economics, Fort Hays Kansas State College, Hays, Kansas. For additional personal note, see "Pages with the Editors."

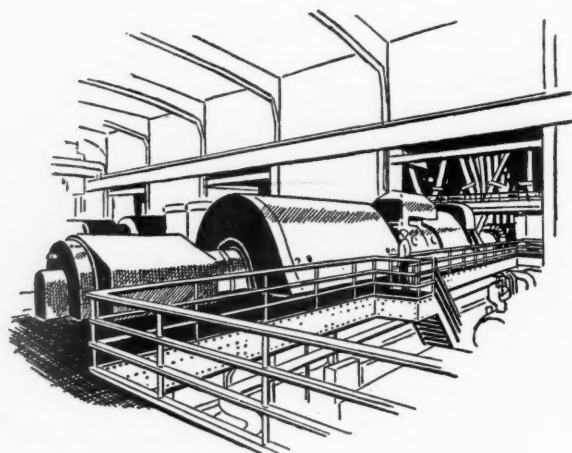
3. To convey instantly the sound of a voice speaking at one place to any other point or any number of points around the world.

4. To convey instantly the visual replica of an action, such as a presidential inauguration, to men and women in their living rooms all over America.

5. To develop a medical preventive against death from pneumonia.

6. To transport physically a person from Los Angeles to New York in less than four hours.

7. To build a horseless carriage of





## ATOMIC ENERGY AND FREEDOM OF ENTERPRISE

the qualities and capabilities described in the 1957 advertising folder of any automobile manufacturer.

Without much doubt you would have selected the first problem as the one easiest of solution. In fact, the other problems would have seemed fantastic and quite likely would have been rejected as figments of someone's wild imagination. Yet fifty-seven years later which of these problems remains unsolved? What accounts for the 1957 automobile and other fantastic accomplishments? Government did not pre-empt these activities.<sup>1</sup>

A LITTLE more than a decade ago a new source of energy thrust itself with dramatic emphasis upon the world. Its political and economic ramifications are almost beyond comprehension. Nuclear fission may well become the chief source of industrial energy as well as offering numerous other benefits to mankind.

It would seem that we must now consider the rôle of the government and private enterprise in developing peaceful uses of atomic energy. Some have expressed a belief that the decisions dealing with atomic power in industry, commerce, and in the military are too important to be left to the traditional frame of reference of a free competitive society. They postulate governmental direction at the helm. This at once poses a question as to whether such direction will maximize welfare in the categories indicated.

Our ideology is that of a freely competitive society. Traditionally, in our ideology the rôle of the government has been

that of the maintenance of the "rules of the game" in which private initiative, private property, freedom of contract, the profit motive, and competition have been relied upon to maximize the private and public weal. Historically this kind of an economic system has been eminently successful in that it has provided its adherents with the good things of life, yet at the same time has afforded them a considerable measure of freedom and opportunity to exercise their talents.

THE system has poured forth a myriad of new products at competitive prices. It has enabled new territories to be opened up with amazing rapidity. It has fashioned an economic colossus the like of which has not been duplicated anywhere else in the world. In a word, our society achieves its potential through a free market mechanism.

In the field of energy man progressed from animal and human power to the use of coal, water power, oil, and electricity. Each step forward in the field of energy has increased man's command over his economic future.

### *Age of the Atom*

IN the area of atomic power it has been estimated that were complete fusion of a pound of uranium 235 to occur, the heat generated would be equivalent to that generated by two and a half million pounds of coal. This to the layman is Buck Rogers material. Incidentally, a pound of uranium 235 is about the size of an inch cube. In addition, there is the possibility of combining atoms which is the opposite of the fusion process.

With our ever-increasing demand upon our energy sources it does not appear un-

<sup>1</sup>John C. Sparks, "If Men Were Free to Try," Foundation for Economic Education, Clipping of Note, Number 63; also printed in *Reader's Digest*, July, 1954.

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likely that, in the not too distant future, electricity produced from atom splitting may be competitive from a cost standpoint with electricity generated from the other energy sources. This frame of economic reference will be different from country to country.

Sir John Cockcraft, director of the Atomic Energy Research Establishment at Harwell, England, noted that by 1975 the British Isles will obtain half of its total electricity from nuclear energy.

**F**URTHER, the products of atomic materials are utilized in the fields of agriculture, food processing, medicine, industrial production, etc. Besides these direct applications of the atomic materials there are the indirect ramifications of this new source of power; i.e., education, legal services, sales services, waste disposal, insurance, investment, transportation, etc. In short, this new source of energy means investment, private or public, of billions of dollars annually.

All of this brings us to the question of public *versus* private ownership and/or control. From 1933-55 federally owned electrical generating capacity increased from several hundred thousand kilowatts to approximately 12 million kilowatts. Percentagewise, federally owned facilities

have increased in the last twenty-two years from two-thirds of one per cent to about 15 per cent of the total.

### *The Government and the Atom*

**T**HE military direction given our atomic development during the war years and in the decade following 1945 placed our federal government in a commanding position in the development of this giant of energy. In October, 1945, President Truman sent a message to Congress requesting legislation "to fix a policy with respect to our existing plants, and to control all sources of atomic energy and all activities connected with its development and use in the United States."

This message resulted in the Atomic Energy Act of 1946. It is a matter of record that the executive branch of the government had already developed a proposed bill. The act provided for a general advisory committee composed of scientists and technical experts, a military liaison committee, and a congressional Joint Committee on Atomic Energy composed of members of both House and Senate.

Fissionable materials are owned exclusively by the government, thus:

The commission as agent of and on behalf of the United States shall be the



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exclusive owner of all facilities for the production of fissionable material . . . All right, title, and interest within or under the jurisdiction of the United States, in or to any fissionable material, now or hereafter produced, shall be the property of the commission.

The policy of secrecy in the development of atomic devices has further solidified government direction and influence in this field. Initially, and to this day, the development of atomic energy has been primarily governmentally directed and inspired.

Yet, it was through private industry that the government program was first carried out in terms of plant construction, production, and research. As of April, 1955, of the 116,000 persons employed by the Atomic Energy Commission, 110,000 persons were employed under private industry. This represents about 95 per cent of the total.

To summarize, private industry from 1946-54 was prevented from developing peaceful uses of atomic energy because:

1. Military requirements were given priority on the technical know-how.
2. The government owned the fissionable materials.
3. Security and secrecy regulations are government costs; private venture capital does not like to incur these costs.
4. Atomic energy patents under the Atomic Energy Act of 1946 were retained in a government-controlled pool.
5. The provisions of the act of 1946 were oriented toward government monopoly, a position in keeping with the political party in power.

Changes in the executive branch of the government and the appointment of Lewis L. Strauss as chairman of the Atomic Energy Commission was indicative of change for an increased participation of industry in the development of atomic energy.

The Atomic Energy Act of 1954 revised the act of 1946. It gave emphasis to the peaceful uses of the atom in that industry was encouraged to participate in the development of nuclear power. The ownership question was not definitely settled, however. It now became possible to license private industry, or state or local power groups, to use nuclear materials in research and power reactors. Further, access to restricted data was permitted. The area in which a private firm could claim a patent was broadened. Security clearance was made less stringent. Nonsensitive information was to be made available.

ALL release of scientific and technical information concerning atomic information is governed by the Atomic Energy Commission. The decision of the commission is final. In addition, the thorny problem of personnel security is under commission jurisdiction. The law of 1946 requires an investigation by the FBI of all employees of the commission and private industry connected with atomic research and production. Out of 503,810 persons investigated since 1947, only 494 persons or one-tenth of one per cent have been denied the highest or Q clearance.

The field of research and development has taken place in government-owned facilities; *i.e.*, Oak Ridge National Laboratory, private or public educational institutions, and private or industrial research institutions. As of June, 1955, 90 univer-



## Research Program

**“F**OR the past five years the AEC has conducted a power reactor research program in terms of (1) choosing the best reactor type, (2) production of experimental reactors, (3) encouragement of study by private industry, and (4) encouragement of production and generation of full-scale central station reactors. Experimental reactors have been constructed by Westinghouse at Shippingport, Pennsylvania, by the Sumner Solit Company, Inc., at Argonne National Laboratory and at Oak Ridge, and at Santa Susana, California, by North American Aviation, Inc. The commission hopes to get private industry to construct and operate nuclear power plants of greater capacity than the experimental plants.”

sities, colleges, and research institutions were doing physical science research.

The domestic information and education program of the commission has resulted in two training schools, one at Oak Ridge Institute of Nuclear Studies which conducts intensive courses in the safe and efficient handling of radioisotopes, while the other, the Oak Ridge School of Reactor Technology, offers graduate study to private industry. The commission also makes an effort to provide speakers and information for conferences, symposiums, conventions, and other gatherings.

**F**OLLOWING the 1954 law, the commission supplied certain technical information to industry. Some 2,000 Atomic Energy Commission declassified reports

are now or soon will be available for purchase. Depositories for unclassified reports are kept in the Atomic Industrial Forum in New York, the John Crerar Library in Chicago, the Stanford Research Institute in Stanford, California, and at the Georgia Institute of Technology in Atlanta.

Special publications are distributed to libraries by the commission. Appendix 6 to the eighteenth semiannual report of the Atomic Energy Commission lists these publications.

**T**HE atoms-for-peace program represents an attempt to export our atomic know-how as well as atomic materials. Apparently, it had its inception with President Eisenhower's speech to the



## ATOMIC ENERGY AND FREEDOM OF ENTERPRISE

United Nations, December 8, 1953. Thus, an International Conference on Peaceful Uses of Atomic Energy was held in Geneva, Switzerland, August 8-20, 1955. A U. S. built research reactor was shipped to Geneva and exhibited.

Technicians and students from other countries were also trained in nuclear science and twenty-three foreign doctors and surgeons toured U. S. medical installations.

During 1955 the U. S. negotiated bilateral agreements with 27 countries for the mutual exchange of information on peaceful uses of atomic energy and on construction and operation of research reactors.

Thus it becomes plain that the atoms-for-peace program looks first toward an exchange of information; secondly, technical instruction; and, lastly, aid in the construction of research reactors including the sale or lease of small amounts of uranium 235.

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Experimental reactors have been constructed by Westinghouse at Shippingport, Pennsylvania, by the Sumner Sollit Company, Inc., at Argonne National Laboratory and at Oak Ridge, and at Santa Susana, California, by North American Aviation, Inc.

The commission hopes to get private industry to construct and operate nuclear power plants of greater capacity than the

experimental plants. Thus, at the present time five major power demonstrator reactors are built or being built—the Nuclear Power Group in Illinois, the Yankee Atomic Electric Company in Massachusetts, the Detroit Edison Company group near Monroe, Michigan, the Consumers Public Power group in Columbus, Nebraska, and one proposed in New York by the Atomic Power Development Associates group. In addition, smaller reactors have been approved for Massachusetts, Florida, Ohio, Michigan, Alaska, and Minnesota.

In the field of new material exploration, the AEC has encouraged exploration and extraction of the uranium ores through the media of price. In addition, maps, research programs, and opening of the public land have facilitated the development of the uranium ore industry.

In the area of processing of nuclear materials the AEC has spent tremendous sums in separating the uranium atoms into uranium 235 and uranium 239. The investment in this type of plant is in the neighborhood of \$6.6 billion.

Radioisotopes have been made available by the AEC for use in cancer research and therapy. Some have been sold and some have been made available without charge.

### *Conclusion*

**I**T must be obvious from the foregoing that the atomic energy industry is not at present one where we may expect private industry to carry on alone. The government is too intricately involved from the standpoint of military purposes to throw the gates open completely to free enterprise.

Louis H. Roddis, deputy director of the reactor development division of the AEC,

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in speaking before the Ohio Conference on Peacetime Uses of Nuclear Energy in August, 1956, noted that by 1970 25 million kilowatt-hours annually would be produced in nuclear power plants in the U. S.

He estimated that by 1975 the figure would top 80 million kilowatt-hours annually or about 20 per cent of total American power production. One may well ask what part private industry will have in all of this.

THE writer would call attention to the opening lines of the "If Men Were Free to Try" cited at the beginning. It is clear that we now have in our hands a source of energy which is capable of performing tasks of undreamed of magnitude. Let us resolve to use it to the fullest extent.

IN the past we have looked to private enterprise to provide us with our innovations and our production of goods and services. Let us not abandon our traditional and tried way of getting the job done.

We are heading in the right direction. Let us hope for a continuation of the program initiated in 1954-55 in which private industry has been given a larger share in atomic development.

Eventually we may hope for an evolution of the AEC from a body commanding our atomic development to a regulatory body whose functions are those of providing information and research, guardian of our nuclear stock of materials, setting safety standards, etc. It is in this manner that we may expect to see fullest use made of our new source of power.



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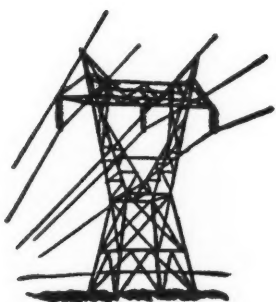
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### Gas Lamp Post, Anyone?

BALTIMORE'S gaslight era will flicker out in April. For the first time in 140 years, not a single city street will be illuminated with the soft glow of gas lamps.

The aged gaslights were to be carted to a city yard, there to be consigned to the junk yard or sold to the collectors.

According to a Baltimore official, one of these bulky antiques can be purchased for \$10 to \$18—without a glass bowl that would more than double the final cost. A number of Baltimoreans, he said, have bought old gas lamps to give a nineteenth century touch to their gardens or back yards. And Walt Disney bought 70 of the more picturesque fixtures to illuminate a part of Disneyland in California.



## Electric Power Serves the Army

The Army is one of the electric utility industry's biggest and best customers. Here is a description of what happens when the commercial company kilowatts join the Army service.

By C. E. ZEDAKER, JR.\*

**T**RY to visualize an electric power bill of nearly \$43 million a year. This is the amount the Army pays for electricity for installations in the continental United States and overseas, including Europe and the Far East. To get an idea of the immensity of this electric power bill, consider the present average residential electric bill, which is approximately \$74 a year. The Army's annual expenditure for electricity would, therefore, pay the electric bills for 580,000 such average residential customers each year.

Approximately 90 per cent of the Army's electricity is purchased from commercial sources because of the high dependability of utility company power and because it is cheaper. The 10 per cent of electricity which is generated is largely produced in Alaska and Okinawa where it is necessary for the Army to build elec-

tric power-generating stations due to the nonavailability of commercial power. Electricity is used at training, depot, and manufacturing installations and for such special facilities as anti-aircraft defense sites. It lights hospitals, mess halls, administration buildings, barracks, clubs, family quarters, roads, walks, and outdoor storage areas; it pumps the water, runs the sewage disposal plant, drives special water pumps to assist fire fighters; it keeps produce and meats refrigerated; drives stokers, oil burners, fans, feed water pumps, and other equipment in boiler plants and small heating systems; it heats water, runs fans to make buildings more comfortable, provides air conditioning in hot climates, cooks food, drives shop equipment, and provides power for telephone and radio communication. In fact, it does almost any work that you can think of. You can see that electricity is very important to a modern military establishment.

\*Chief, electrical branch utilities operations division, Office Chief of Engineers, U. S. Army. For additional personal note, see "Pages with the Editors."

## PUBLIC UTILITIES FORTNIGHTLY

For certain critical facilities, emergency power is needed in case lines go down as they did during Hurricane Hazel. Loss of power for even a short time cannot be tolerated in a hospital when a patient is undergoing an operation, is in an iron lung, or an oxygen tent. Radio and teletype equipment vital to the exchange of military information world-wide must have continuous power. To assure power when electric lines are out of service, engine-driven electric generators which start automatically upon loss of power are provided. Antiaircraft defense sites vital to the defense of the nation cannot depend entirely on commercial power and have their own generators for use during air-raid alerts. Water pumping is another operation that is vital and one or more pumps are equipped with gasoline or diesel engines to provide necessary water in case the power goes off. Generally, no other emergency power is provided.

THE Chief of Engineers, among other duties, is responsible for repairs and utilities for the Army. The furnishing of electricity and maintenance of electrical lines and equipment for the Army is a responsibility of the Chief of Engineers under this assignment. The commanders of the six continental armies, the military district of Washington, the oversea armies, and the chiefs of technical services are responsible for repairs and utilities at their respective installations. Engineer officers on the staffs of these commanders and chiefs of technical services direct the program. At each Army post, camp, or station the "Post Engineer" is in charge of the work locally. He supervises a force of civilian electricians who operate and maintain the electric lines and equipment.

SUPERVISION of repairs and utilities work, covering operation and maintenance of electric lines and equipment, is carried out by a well-co-ordinated program, based on years of experience by the Chief of Engineers in this field. It includes co-ordination of design of new facilities on the basis of experience in operation and maintenance of existing facilities. This can be done with a minimum of effort since the Chief of Engineers is also responsible for major new construction for the Army. Through such co-ordination, new facilities are provided which can be operated and maintained efficiently and economically.

The electric plant used to furnish the needs of the world-wide Army is valued at over \$323 million. It consists of generating stations on Okinawa and in Alaska and 13,000 miles of lines and associated equipment. The electric lines operated by the Army are the equivalent of a double-circuit line from New York to Tokyo.

Maintenance of electric systems and equipment costs the Army \$17.8 million a year. This work is roughly divided into two categories: preventive and regular. Preventive maintenance is a regularly scheduled system of inspections and repair to locate and correct potential failures before they occur and to keep the equipment in proper operating condition. It covers such things as periodic lubrication of electric motors, checking distribution line poles for rotting, cracking, and splitting; checking transformers for proper oil level, leaks, and replenishing oil, where required, and work of a similar nature on other electrical system components. Regular maintenance involves the necessary work required to keep the system in first-class operating condition and results, in



## ELECTRIC POWER SERVES THE ARMY

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many cases, from the findings of the preventive maintenance inspections. It includes such things as straightening or replacing defective poles, replacing or repairing broken insulators, faulty lighting fixtures, broken switches, defective wiring, and other work of a similar nature.

**S**AFETY of maintenance personnel is a major concern of the Chief of Engineers. Proper and safe tools and equipment are used. Trucks equipped for difficult maintenance work are provided and carry all equipment and supplies to the job. Such things as pole-climbing equipment, small tools, wire, insulators, and fittings of all kinds are carried on these trucks. Rubber protective equipment such as line hose, insulator hoods, and rubber blankets are installed on hot lines to keep the men from being electrocuted. Work near or on hot lines is done using rubber gloves or specially insulated tools and all work is directed by a foreman who keeps a close watch to see that his men work safely.

The Chief of Engineers establishes policies and procedures governing operation and maintenance, publishes manuals to assist maintenance personnel, and publishes standardized maintenance procedures for use throughout the Army. A cost and operating reporting system has been

developed which provides necessary technical data and cost information on maintenance and operation. The information obtained is used as a management control to weed out uneconomical operating and maintenance practices.

**C**ONFERENCES of electrical engineers of the various Army commands and Chief of Engineers are held as often as necessary to discuss and solve mutual problems and for general educational purposes. Field visits to Army and technical service command headquarters and installations are made by electrical personnel on a regularly scheduled basis to review operating procedures and provide technical assistance on routine problems. When required, special visits are made to solve special problems and to assist in the preparation of difficult projects. Indices of performance are established to assist technical personnel at all command levels in meeting the Department of Army standards of operation and maintenance. For instance, electric motors which fail in service and require a shop repair job, should not exceed 3 per cent per year of the total number of motors in service when established standards of maintenance and inspection are followed. Other indices such as the number of failures per million feet of electric line per year and the percentage of dis-

## PUBLIC UTILITIES FORTNIGHTLY

tribution transformers which may fail due to normal causes have been established.

Electrical personnel of the Office of the Chief of Engineers provides the necessary technical assistance in the preparation of the annual budget and funding programs for furnishing electric energy and the maintenance of electric systems for the Army.

**T**HE Chief of Engineers conducts an effective electrical conservation program. No attempt is made to curtail essential usage, but a serious and continuous effort is made to eliminate all waste. Principal conservation measures are:

- a. Lamp sizes are limited to the authorized standard.
- b. Hall, entrance, and latrine lights are reduced to a minimum.
- c. Lights, equipment, and appliances are turned off when not needed.
- d. Street, area, perimeter, and security lighting is reduced to the lowest level consistent with safety and security and burning time is controlled.
- e. Heavy motors are operated at off-peak load periods to reduce power demand charges, whenever possible.
- f. Capacitors for power factor correction are used to reduce power bills where the saving is appreciable.
- g. Distribution lines in deactivated areas are taken out of service, whenever practicable.

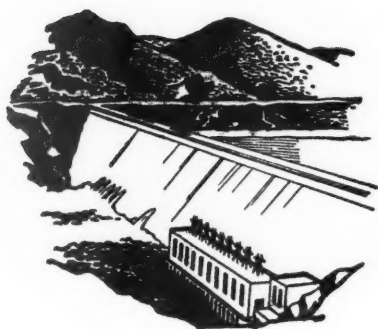
At post level, the program is administered by a conservation officer appointed by the post commander. The conservation

officer issues conservation directives, designates unit conservation officers, and maintains effective control over the program. Conservation posters are a normal supply item and are installed in conspicuous places adjacent to switches controlling lights and equipment as reminders to reduce waste.

The Chief of Engineers assigns goals to Army and technical service commanders who, in turn, assign goals to their installations. Performance of these commands is analyzed quarterly, and the necessary guidance is given by the Chief of Engineers for maintaining an effective conservation program. Letters are sent to each commander to point out strong points, deficiencies, and give appropriate recommendations for improvement of performance.

**I**T costs a lot of money to provide electricity for the many facilities operated by the United States Army, but without electricity the going would be rough indeed. Many heating systems that depend on electric power for operation would be inoperative, there would be no light to work by, and even water in many instances would be unavailable because it is pumped by electricity. The salaries of electrical personnel assigned to this job are small in comparison to the total cost of the job.

Because of the controls exercised over maintenance practices, operating procedures, and usage of electricity by the Chief of Engineers, an efficient and economical operation is assured.



## Does Congress Have a Government Power Mandate?

*The claim has been made repeatedly by Senators and Representatives from the Pacific Northwest that the recent election resulted in a "mandate" for more federal power development. People from other areas unfamiliar with the local facts, may well be impressed by these claims, based on the election of certain Congressmen. But is there actually such a "mandate"?*

By KENNETH McCORD\*

THE 85th Congress has now passed its opening period of organization and preliminaries. From now on its committees will come to grips more and more with actual legislation. Among the more controversial bills will be several dealing with the federal government's perennial headache—the question of whether to authorize federal multipurpose projects and in what manner. Admittedly, the future power supply problem is acute in the Pacific Northwest where some successful candidates for election have opposed President Eisenhower's avowed policy of encouraging local interests, including business-managed electric companies, to

participate in the building and operation of the power features under the so-called "partnership policy."

One of the complications growing out of this situation is that some of these Congressmen are spreading the word that they owe their election to such opposition to the "partnership policy" and to their advocacy of expanding direct federal government responsibility for the building, ownership, and operation of such power facilities. They are claiming a "mandate." It may well be that other Congressmen from other areas have been impressed by these claims. They may be actually persuaded that the voters in the Pacific Northwest have given these area Congressmen a "mandate" along these lines, even while all of these states without ex-

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## PUBLIC UTILITIES FORTNIGHTLY

ception voted overwhelmingly for President Eisenhower's own re-election as President.

Spreading this impression could lead to mischief if it is based upon a misrepresentation of the facts. And what are the facts?

**I**F the Pacific Northwest is considered as one area of the United States where government power has its greatest strength, then it could well be on its deathbed in every other part of the country.

Surveys and election results, where there has been a clear-cut so-called "public *versus* private" power issue, indicate that the government power movement now finds very little support among voters in all of the Northwest. This appears to be true whether the public power be federal, state, PUD, or municipal.

There are also increasing signs that the residents of the Northwest do not look with favor on the tax exemptions and special privileges granted to government power bodies.

For the past several years public power has lost every election where the issue to be voted upon has been clear cut and it is quite obvious that it can no longer count on support by any majority of the people.

Now the public power zealots are claiming that the 1956 election successes by certain candidates in the Northwest are a "mandate" for government power—yet in every instance where the voters had an actual choice without any other factors being present private power scored a decisive victory!

In Idaho, Gracie Pfost and Frank Church, Democratic candidates, won congressional and senatorial seats, respec-

tively. The Hell's Canyon crowd has called these victories "a resounding victory for the high dam on the Snake river," but take a look at the results of a public opinion survey made in the first congressional district of north Idaho where the high dam is alleged to have its greatest support.

The survey was made between September 13 and 19, 1956. One of the specific questions asked was:

In the congressional election this fall what are some of the issues you feel will be the most important to you?

**A** MAJORITY of those polled could name no particular issue as important to them but those who did mention issues put the "farm problem" at the top of the list. Next in importance came foreign policy, then peace. Trailing along at the bottom, with only 6 per cent mentioning it at all, came the power issue—Hell's Canyon in particular. And the big majority of that 6 per cent said they favored private development of Idaho's hydroelectric resources!

The survey also asked this question of north Idaho voters:

Is there anything in particular about Frank Church that might make you want to vote for him?

While many of the respondents mentioned "his youth," "he's a Democrat," and assorted other reasons why they would vote for Church, only eight persons gave reasons that might possibly be interpreted as being tied in with support for public in general or a high dam in Hell's Canyon specifically.

Exactly the same question was asked about Gracie Pfost, congressional candi-



## DOES CONGRESS HAVE A GOVERNMENT POWER MANDATE?

date and incumbent from Idaho's first congressional district. Known in the nation's capitol as "Hell's Belles Gracie" because of her constant efforts to get the federal government to build a high dam in Hell's Canyon, Mrs. Pfof has failed to make the same impression on the voters at home. Only twelve persons of all those interviewed, mentioned her stand on power as one of the reasons for supporting her bid for re-election.

The majority of those polled said they would vote for Mrs. Pfof because she was a Democrat (this particular congressional district is traditionally Democratic) and this was followed closely by people who said they "knew her personally."

**T**O summarize briefly some other findings in this survey: 38 per cent of all those polled felt that Mrs. Pfof should drop her proposal for a high dam at Hell's Canyon. Questioned further on this, respondents were asked:

Should Mrs. Pfof drop her high dam fight if it might mean further delay in the development of electric power projects in the Canyon?

In answer to this question 64 per cent

said yes! Any conclusion that might be reached from an analysis of this pre-election survey could hardly indicate that winning candidates won because of any stand they had taken on public power. On the contrary, the survey clearly indicates that power was not considered one of the major issues and, in fact, was hardly even thought of at all by a majority of the voters.

### *No Mandate in Washington State Either*

**O**VER in the state of Washington the Washington Water Power company, which just last year won a "public *versus* private" victory in Stevens county that attracted nation-wide attention, asked Central Surveys, of Shenandoah, Iowa, to find out what its customers might have to say on certain of the so-called "power issues." While the survey contained numerous questions about rates, service, and so on, there were certain key questions that clearly reveal the thinking of Washington residents.

On the question of who should finance electric power dams in the Northwest, a whopping 62 per cent thought local systems should finance a part of the costs,



**Q** "PRE-ELECTION surveys in Oregon showed the federal power issue ranking fifth on a list of six pertinent issues that were tested in that state. No more than 10 per cent of Morse's supporters gave any weight to the issue of power and resource development. Persons outside of the Northwest who think the state of Oregon is public power minded might be surprised to know that of 28 elections in recent years where government ownership of power facilities has been a direct issue, investor-owned companies won 26 elections and lost just two—a victory percentage of 92.8 per cent!"

## PUBLIC UTILITIES FORTNIGHTLY

14 per cent thought the federal government should do it all, and 24 per cent had no opinion at all.

On the question:

If you had a choice, would you rather get electric service from a public utility district, an REA co-op, or a company?

Sixty per cent of those polled favored company service, 4 per cent expressed a preference for PUD service, 2 per cent thought the REA would be best, and 34 per cent said they had never given it any thought. Of those expressing an opinion there was a 10-to-1 preference for company service. The huge majority of those favoring company service said their reasons were (1) a belief in private enterprise, (2) better service, (3) fair rates.

It would seem that while Washington state residents are not always familiar with the differences between public and private power, they do have some very definite ideas about it when they do know all the facts. Take a look at the results on this two-part question. First the customers were asked:

Do the public utility districts pay the same taxes that the privately owned electric power companies do?

Nine per cent thought they did, 23 per cent said they were sure the PUD's did not, and 68 per cent said they did not know.

Part two of this question was:

Do you think that public utility districts *should* pay the same taxes that the private companies have to pay?

Just 7 per cent of those polled thought the PUD's should be excused

from taxes. Twenty-six per cent said they had no opinion on this but 67 per cent thought the PUD's should pay the same taxes that the private companies do!

Another question concerned the much-publicized activities of the Hell's Canyon Association:

Do you think the Hell's Canyon Association is right or wrong in trying to stop construction in Hell's Canyon by the Idaho Power Company?

Twenty-three per cent had no opinion to give on this question. Twenty-eight per cent thought the association had a right to intervene, and 49 per cent thought the association was wrong in its attempts to delay construction in the canyon.

THERE were a few significant elections in the state of Washington on November 6, 1956, where it is possible to gauge the feelings of the voters on the power issue—when and if there is such a thing as a “power issue.” Numerous public utility district commissioner posts had to be filled by the voters. Commenting on these elections and the candidates before the election, the *Public Power News*, official publication of the PUD association, had this to say:

Clear cases of public *versus* private power contests have arisen in two instances. In Stevens county the Citizens Power Vote Committee which backed the sale of the PUD system last year to Washington Water Power is sponsoring Sherman F. Edwards against James Potter, a PUD supporter. In Yakima county the perennial battle between Pacific Power & Light and independent forces to control the nonoperating PUD there is boiling up again.



### The Power Issue in Politics

**“T**WENTY years ago public power won 70 per cent of the elections where power was a clear-cut issue. In 1953 it won less than two per cent of the elections across the nation. As the president of Washington Water Power, Kinsey M. Robinson, said, ‘When the issue is plain for all to see, the people will support private enterprise every time.’ Even in Tennessee, where almost all of the people are served by public power, the recent elections proved that public power cannot count on support of the voters. In spite of the cry of ‘big business,’ the ‘big giveaway,’ the claim that the administration was ‘wrecking TVA,’ the voters by unprecedented majorities endorsed President Eisenhower’s theory of not using tax funds to develop and expand power projects.”

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Yet, with public power forces admitting that here was a “clear-cut” issue, and with a substantial amount of time, effort, and money being expended in an attempt to earn a victory for public power candidates, the so-called “private power candidate” won by a substantial majority.

On November 6th, two Washington towns voted to sell their municipal systems to a private utility. This disposal of municipal systems ties in closely with a

national trend. An ever-increasing number of municipal systems are being sold to business-managed electric companies. Only one new municipal system was established in 1955 while nine were discontinued—eight of these nine being sold to private companies.

Federal Power Commission and Edison Electric Institute records show that 4,257 towns and cities have tried municipal ownership at one time or another and that

## PUBLIC UTILITIES FORTNIGHTLY

only 1,994 survived by 1955—2,303 went out of business!

**I**N 1956 in Oregon there were no elections where the voters were voting only on the issue of public or private power. The discontent of Oregon wheat farmers with parity policies has been cited as one of the major factors in the defeat of Representative Sam Coon. It is also believed that Congressman Ellsworth lost his bid for re-election because lumber mill workers blamed curtailed mill operations on tight money affecting housing.

Pre-election surveys in Oregon showed the federal power issue ranking fifth on a list of six pertinent issues that were tested in that state. No more than 10 per cent of Morse's supporters gave any weight to the issue of power and resource development.

Persons outside of the Northwest who think the state of Oregon is public power minded might be surprised to know that of 28 elections in recent years where government ownership of power facilities has been a direct issue, investor-owned companies won 26 elections and lost just two—a victory percentage of 92.8 per cent!

Private companies still serve approximately 70 per cent of all the power customers in the Pacific Northwest. All recent surveys indicate that these customers are satisfied with the service they are getting and with the rates they are paying. Even more important is the growing demand by all residents, particularly in the state of Washington, that public power organizations, particularly PUD's, accept the same tax responsibilities that private companies do. Even some PUD officials

are now admitting that the PUD's do not pay their fair share of taxes. Robert Keiser, newly elected PUD commissioner of Chelan county, Washington, has been appointed to the state PUD Association Tax Committee. He recently stated "The Chelan community has much to gain from legislation that will allow publicly owned utilities to make in-lieu-of-tax payments equal to property taxes paid by privately owned businesses. The present in-lieu-of-tax payments are inadequate and have the further disadvantage of being based on power use instead of, for instance, growth of school enrollment."

**W**ASHINGTON state schools are faced with a tremendous problem of financing and school organizations and school officials are demanding, more and more, that PUD's pay taxes equivalent to those paid by the private companies. At a recent "Little White House" meeting of school administrators, teachers, and citizens in Seattle, a resolution was presented asking that the PUD's be taxed exactly as are the private companies. In areas where public power-generating facilities are being constructed school officials are demanding that the builder provide funds to alleviate overcrowding of schools brought about by the influx of construction workers. They are pointing out that when private companies start construction in an area they build schools, they pay the salaries of extra teachers, buy new school buses, and go out of their way to help solve school problems.

The Grant County Public Utility District, in Washington's Columbia basin, is starting construction of Priest Rapids dam. School officials in the affected area have asked the PUD to pay most of the



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cost of educating children of construction workers and for aid in school construction. Nat Washington, attorney for the PUD, says that the district will have to ask the state attorney general whether such an agreement would be legal.

County officials, faced with the tremendous tax losses that come with public ownership of power facilities, are asking for some relief. In some cities a city tax is being placed on retail power sales by the PUD's.

Everywhere in the Northwest all signs point to one simple fact. The people have discovered that public power is usually a public burden. They have come to realize that the glitter of public power is not gold—it is just whitewash!

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the people are served by public power, the recent elections proved that public power cannot count on support of the voters.

In spite of the cry of "big business," the "big giveaway," the claim that the administration was "wrecking TVA," the voters by unprecedented majorities endorsed President Eisenhower's theory of not using tax funds to develop and expand power projects. The Stevenson-Kefauver ticket failed to carry Kefauver's congressional district, his home county, and even his home precinct. Stevenson and Kefauver failed to carry a single one of the so-called public power states.

**O**NE other important fact is also being overlooked in the Far West. The partnership plan for development of power and natural resources is best known in Idaho, Washington, and Oregon as the "Eisenhower partnership plan." The proposal has just been pinned squarely on the President and his administration. And in the 1956 elections the Eisenhower-Nixon ticket carried every single one of the western states.

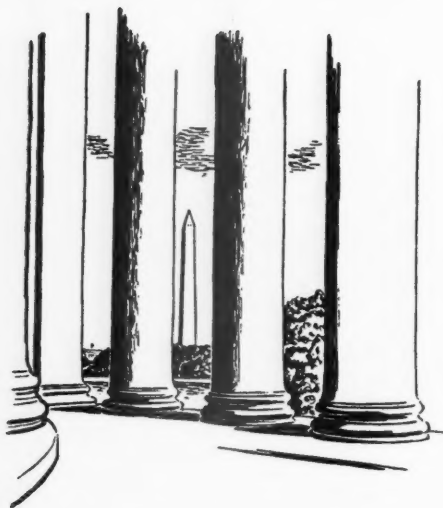
Does that sound like a "mandate" for federal power only?

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**"F**EDERAL tax collections for the fiscal year which ended last June 30th totaled \$76,113,000,000, an increase of \$8.8 billion over the previous year. And a partial breakdown of tax sources shows what a burden the taxpayer carries. There are corporation income and profits taxes; social security taxes, income taxes, estate and gift taxes, alcohol and tobacco taxes, excise taxes, and just plain (or, as Uncle Sam calls them) 'not otherwise classified' taxes. And these different taxes are mounting every year—that \$8.8 billion increase amounts to an increase of 13 per cent. . . .

*"The only answer to high taxes is to reduce government spending. Nothing very much will help the overburdened until the taxpayers raise as great a clamor over government spending as they do over government's sticky fingers."*

—EDITORIAL STATEMENT,  
*The Wall Street Journal.*



## Washington and the Utilities

### *Reaction to Oil Price Boosts*

**W**HATEVER may have been the intentions of those seeking to revive legislation in the new Congress to exempt gas producers from federal regulation, they were not helped at all by recent increases in gasoline and fuel oil prices. It may well be that oil companies, to whom such price increases are far more important than revenues from natural gas, felt that the timing was justified in view of operating complications growing out of the Suez crisis.

But some of the so-called "consumer state" Congressmen who have been neutral or indifferent to President Eisenhower's recent plea for reviving a producer exemption bill, got a very sour reaction out of the oil and gasoline price increases. They say privately that it puts them on the spot with the consumer voter and makes any legislation along this line much more sensitive from the political standpoint.

The situation was not helped when a top administrative spokesman told a Senate committee that he did not even have information on which to judge whether crude oil, gasoline, or fuel oil prices were

justified. The Senate committee which is investigating the situation is headed by Senator Joseph O'Mahoney (Democrat, Wyoming), who claims that Congress has been deluged with letters and telegrams of protest over the higher oil and gasoline prices. He and his group—composed of members of the Senate Judiciary, Interior, and Interstate Commerce committees—spent a whole day (February 5th) hearing how the government had blessed a voluntary combine of 15 major oil companies so they could ship more oil to western Europe. Shortages there, especially of fuel oil, have been acute since the closing of the Suez Canal. One of the chief architects of this combine is Arthur Flemming, director of the Office of Defense Mobilization, who testified on February 5th.

**I**T was this plan to divert more oil to rationed western Europe which the Humble Oil & Refining Company of Houston blamed when, last January 3rd, it raised crude prices an average of 35 cents per barrel. This set off the chain reaction which boosted costs to consumers of gasoline and fuel oil. The gas price

## WASHINGTON AND THE UTILITIES

upping came while very large stocks of this fuel are in storage in the United States.

Flemming (whose resignation from government service for other reasons was announced the following day) said he was not fully pleased with the results of the new plan. This plan permits the oil companies to combine for specific purposes without risking antitrust prosecutions. It has not caused Europe to get all the oil Mr. Flemming and other U. S. government officials had hoped for.

**M**EANWHILE, Congressmen from gas-producing states did not seem to be in any hurry about introducing new legislation to exempt gas producers from FPC control or pushing the same to early committee hearings. As a matter of fact, Speaker of the House Rayburn (Democrat, Texas) and Chairman Harris (Democrat, Arkansas), both of whom bore the brunt of advancing the cause of the Harris-Fulbright Bill in the last session (before it was vetoed), seem to be more interested right now in investigating regulatory commissions, than in exempting industries from their jurisdiction. Rayburn said it is time to determine whether federal regulatory laws are being carried out, "or whether a great many are being repealed" administratively. Chairman Harris announced that a special subcommittee had been appointed to look into this. "There has been contention for a long time about the way some of the agencies have been administering the law," Harris said.

The regulatory agencies covered by the Rayburn proposal are: Federal Power Commission, Federal Trade Commission, Securities and Exchange Commission, Federal Communications Commission, Interstate Commerce Commission, Civil Aeronautics Administration, and Civil Aeronautics Board. Representative

Springer (Republican, Illinois), a member of the House Commerce Committee, concurred in the suggestion but said the inquiry should go all the way back to the agencies' origin—not just part way back.

### *Niagara Compromise*

**A**DVOCATES of expanding activities of the federal, state, and local government agencies into the power business are still not enthused over the alleged "compromise" for settling the controversy over Niagara power development. But realizing that this element would not be entirely satisfied with anything less than complete development by and distribution to government power agencies, other parties interested in solving the New York power snarl hope that the new formula, blessed by both U. S. Senators from New York, will gain enough middle-of-the-road support to pass in Congress.

Legislation incorporating this formula for development of Niagara river power by New York state was introduced in Congress early in February. Two companion bills (S 1037 and HR 4294) call for construction of the project by the New York State Power Authority, with a guaranteed allocation of 445,000 kilowatts for Niagara Mohawk Power Corporation. In addition, the measure includes a provision that "a reasonable amount of the power available in the state of New York . . . be allocated for the present and reasonably foreseeable future needs of rural electric co-operatives and municipalities in the project's economic market area."

The advocates of a federal-type preference provision to give co-ops and municipalities an absolute priority still insist on the provisions of the old Lehman Bill in the 84th Congress. The National Rural Electric Co-operative Association, the National Public Power Association, and

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other more socialist-minded groups on electric power matters take a similar stand. Already some congressional Democrats have complained that the guaranties under the compromise are too vague. New York's Governor Harriman, for example, renewed his support for a bill containing an absolute federal preference clause.

THE State Power Authority has indicated what it considers a "reasonable" allocation to public agencies. In a split decision (3-2), the authority voted tentative allocations of power to be developed at Niagara. In addition to the guaranteed allocation to Niagara Mohawk Power Corporation, public agencies would receive 125,000 kilowatts, five private utilities would receive 730,000 for rural and domestic users, neighboring areas in Ohio and Pennsylvania would receive 150,000, and another 550,000 would go for expansion of existing industries on the Niagara frontier and for national emergency defense plant needs. The allocation to municipalities and co-ops amounts to 16.2 per cent of output.

### *SPA Rate Boost Supported*

A SPOKESMAN for the White House has turned down a plea from nine House members to delay Southwestern Power Administration rate increases now being considered by the Federal Power Commission. A letter from Jack Z. Anderson, presidential assistant, to Representative Edmondson (Democrat, Oklahoma), backs up an Interior Department position that SPA rates are too low. Present rates, said Anderson, are inadequate under the law. "In these circumstances," he said, "the Department of Interior deems it inadvisable to continue this inadequate present rate for this area which is inequitable compared to other areas."

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The delay was offered by the House members as indirect relief for farmers hit by drought. But Anderson said drought relief measures should come in a different form and be generally applicable to the entire drought area. The real significance of this development is that it is apparently the first time that a specific proposal for increasing a rate for electric power sold by a federal agency has had definite White House endorsement.

### *REA Atomic Plants?*

DAVID A. HAMIL, REA Administrator, told a group of field representatives engaged in a technical meeting on rural telephone service at St. Louis recently that REA is very much interested in nuclear power plant developments in rural areas. Hamil said nuclear power plants were in the "Model-T stage" now but added, "there is no doubt in my mind that such plants will be used generally for power production—it's just a matter of time."

The Administrator explained that the REA can make loans to nuclear plants and, in fact, has given loan assurance for an atomic plant in Elk River, Minnesota, contingent only on securing a contractor to carry out building specifications. He pointed out the REA may not loan money for experimental purposes, and thus is limited to supplying the amount that a power system of equal capacity, using conventional fuels, would require.

When asked whether he would oppose any congressional effort to increase the 2 per cent interest rate on REA loans, the Administrator said he would rather not comment. President Eisenhower, in his recent Budget message to Congress, virtually called for a boost in the 2 per cent interest rate on REA loan money which (the budget showed) was costing the federal



## WASHINGTON AND THE UTILITIES

government itself 3½ per cent to borrow. "I hope the results of making money available at this (2 per cent) rate will show it has not been a false move," Hamil said.

Although appropriation requests, based on information from potential borrowers, for the agency are down \$35 million from last year, Hamil predicted that REA-financed systems will sell 14 per cent more electricity this year. Most of the loans for rural areas, now 95 per cent electrified, will be for increased generating capacity and improving efficiency rather than building entire new systems, he said.

### *New Power Agencies Opposed*

ASSISTANT Secretary of the Interior Fred G. Aandahl said in Vicksburg, Mississippi, on January 31st that he opposed creation of any new independent federal agencies to plan and carry out water resource development. Aandahl, former governor of North Dakota, told water resource leaders from 15 states in the Missouri and Arkansas-White-Red river basins he is "firmly of the opinion" co-ordination of present federal agencies along with state groups can do the best job of water resource planning.

"Reorganization of government agencies now charged with resource development, or creation of an entirely new agency," he declared, "would be more disturbing than helpful to water development." His remarks were interpreted as opposing establishment of any new federal agency such as Tennessee Valley Authority, which would work exclusive of the Corps of Engineers and Bureau of Reclamation in water resource use. Aandahl had been one of the early leaders in the Midwest in opposition to creation of a Missouri Valley Authority for hydroelec-

tric development in the Missouri river basin.

A paper prepared by Governor Foss of South Dakota, which was read to the Vicksburg meeting earlier, had pointed up opposition of the Missouri river states' committee, made up of governors in the Missouri basin, to an MVA.

"It is apparent that congressional refusal to create a Missouri Valley Authority is in large part due to the unfavorable attitude of governors comprising the states' committee," the Foss paper said.

### *Regulatory Reform*

IMPROVEMENT of regulatory procedures to lessen the burden of regulation was discussed by Attorney General Brownell at the Third National Reorganization Conference of the Citizens' Committee for the Hoover Report. The meeting was held in Washington, D. C., early this month. Brownell referred to the development of "administrative agencies" possessing authority which combines elements of the legislative, judicial, and executive branches of government. He said a substantial portion of the rights and obligations of citizens is determined by rules or decisions of these administrative agencies. Accompanying the growth of the agency has been a corresponding development of a wide variety of procedures.

A special office has been established within the Department of Justice to study procedural improvement under Recommendation No. 49 of the Second Hoover Commission. This central study group is known as the Office of Administrative Procedure. Its function, as stated by the Attorney General, is to study techniques of the administrative agencies to determine whether adequate protection is given to the personal and economic rights of citizens.



## Telephone and Telegraph

### *Mobile Telephone Ruling*

THE California Public Utilities Commission has ruled that mobile telephone service is a utility function and hence subject to regulation. The ruling is the result of an investigation by the commission into proposed rates and conditions applicable to private mobile communications systems furnished on a lease and maintenance basis by the Pacific Telephone & Telegraph Company. The city of Los Angeles and a group of concerns and persons engaged in the installation and maintenance of private mobile radio systems objected to the tariff filings, contending among other things that the services proposed to be rendered under the tariffs are not public utility in character. These groups charged that the filing was an attempt to circumvent a consent decree under which Pacific was enjoined from engaging in any business other than the furnishing of common carrier communication service. The decree ended the federal government's antitrust suit against the Bell system and its manufacturing subsidiary, Western Electric Company. It forbid American Telephone and Telegraph, Western Electric, and its subsidiaries to engage in any business other than the furnishing of common carrier service. Congressman James Roosevelt, appearing

before the commission on behalf of the House Small Business Committee, charged that Pacific's tariff filing was a strategic move on the part of telephone companies to subject their private communication services, not previously subjected to regulation, to regulation by state commissions in order to exempt those operations from the prohibitions of the decree.

Representative Roosevelt further contended that the consent decree not only fails to accomplish what the federal government attempted to do seven years ago but actually assists big business to the detriment of the independent and small businesses. He said that by the decree the monopoly position of Pacific may be even further extended into the area of private communications.

In dismissing this argument, the commission stated:

We are not convinced that Pacific's presence in the field will constitute any threat to the continued vigor of its competitors. It should not, does not propose to, and will not be allowed to favor its own private mobile customers by way of connections with its "land lines" not allowed to the customers of its competitors. It will be required to maintain charges which are fully com-

## TELEPHONE AND TELEGRAPH

pensatory. It will be under the disadvantage of being unable to enter into price competition with its competitors to secure the business of particularly desirable customers; and it will be required to serve customers its competitors may not elect to serve. There is no danger here which would justify our going to the legislature to ask to be relieved of the duty which the law now imposes upon us to regulate the service.

**W**ITH respect to the charge that Pacific was seeking to avoid the consent decree of a federal court, the commission stated:

... If the federal court had wished to bar such activities by the applicant [Pacific] even though subjected to regulation, it would have made such provision and the question would not be before this commission. So far as the effect of the consent decree is concerned, it is not actually pertinent to the issues in this case. If the proposed service would be utility service in the absence of that decree, it is still utility service. If we held this service to be utility in nature in the gas company cases before the consent decree, there is nothing in the consent decree to prompt us to change our holding. If our previous holding that this service is utility in nature, distasteful to Pacific at the time it was made, now turns out because of the consent decree to be beneficial to the applicant, that in nowise affects the validity of our previous holding.

It had been contended before the commission that if the commission undertakes to regulate private mobile communication service furnished to the public by Pacific, it must necessarily regulate all companies or individuals which lease and maintain private mobile communication systems.

But the commission pointed out that it has no power to reach out and regulate an enterprise which has not dedicated its property to the public service. Those groups protesting Pacific's tariff filing all denied any intention of dedicating their own systems to the public. Said the commission:

... The basic difference between the service offered by the telephone company and that offered by its competitors is that the telephone company now offers to render service on the same basis to all qualified applicants for such service. If and when any of the other companies hold out their service to the general public (or to such portion of the public as can qualify for it) they will undoubtedly assume public utility status as telephone companies, and will subject themselves to regulation. Until that happens, we shall have no authority to regulate them. ...

**A** FINAL objection that the operation of a private mobile communications system by Pacific would delay the company's fulfillment of its primary obligation to provide new and better telephone service was dismissed as speculative. The commission recognized that a substantial portion of the public may obtain mobile communication service from organizations other than Pacific. But considering all the circumstances, the commission concluded that no other restrictions other than those provided in its order should be placed on the offering of private mobile service at the present time.

### *CWA Strike Damages*

**T**HE Communications Workers of America has paid Southern Bell Telephone & Telegraph Company \$315,000

## PUBLIC UTILITIES FORTNIGHTLY

for physical damage inflicted on the company's facilities during the long and violent 1955 strike. Payment by the union was the outgrowth of the damage suit filed in 1955 by the company. An agreement to this effect was reached by company and CWA attorneys early this month.

In the suit, Southern Bell charged the union with "a pattern of violence" designed to destroy telephone facilities and interfere with communications service to the public in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Southern Bell sought \$5 million for punitive as well as actual damages, alleging that the union, its members, and others joined "an unlawful combination and conspiracy" to damage property. The suit charged the union with embarking on a program of "wanton, willful, and malicious misconduct and property damage," including the use of dynamite, firearms, and cable cutting.

In a separate action growing out of strike violence, the CWA recently agreed to accept without further hearings an order by the National Labor Relations Board against the international union and 27 of its locals for unfair labor practices during the 1955 strike.

### *Depreciation Cost Basis*

Loss of purchasing power in the dollar in accruing annual charges for depreciation has been recognized in a ruling of the Indiana Public Service Commission. The ruling, which authorized Indiana Telephone Corporation to increase its rates by \$353,500, is significant as a departure from the original cost basis of depreciation accrual. The commission authorized the company to accrue deprecia-

tion upon the basis of the cost of its property, repriced in current dollars, and directed the company to file its annual report with the commission showing depreciation expense accrued on the basis of original cost and on the basis of cost repriced in current dollars.

In justification of its ruling, the commission opinion stated "depreciation is as much a cost of doing business as wages and salaries and other obvious operating expenses; depreciation is the cost of plant or property consumed from day to day in the production of services sold by a utility. (See, also, page 349.)

### *Hush-A-Phone*

THE Federal Communications Commission has ordered the American Telephone and Telegraph Company and its Bell system subsidiaries to rescind any regulation which prohibits customers from using the "Hush-A-Phone" or any other attachment "which does not impair" telephone service. The FCC acted in response to an order from the United States court of appeals for the District of Columbia circuit issued last November. In December, 1955, the FCC had dismissed complaints against AT&T regulations prohibiting foreign attachments to telephones. Hush-A-Phone Corporation of New York appealed the commission's action, the court holding that the regulations represented an "unwarranted interference with the telephone subscriber's right reasonably to use his telephone in ways which are privately beneficial without being publicly detrimental."

The Hush-A-Phone is a cuplike device attached to the mouthpiece of a telephone, designed to give privacy to the user. The FCC has ordered AT&T to comply with the court's ruling no later than April 1st.



# Financial News and Comment

By OWEN ELY



## Utility Stocks Again Popular With Investors

UTILITY stocks, which a few months ago were under pressure because of rising interest rates, have shown an up-trend since November, and continued to forge ahead during January and early February when industrial and rail issues were declining.

The changes in the Dow-Jones averages were as follows:

	Dec. 31	Feb. 11	Per Cent Change
Industrial Average ..	499.5	457.4	-9%
Rail Average .....	153.2	139.3	-9
Utility Average .....	68.5	70.3	+3

This recovery of the utility stocks, and their advance to a new high for recent years, has been attributed to the moderate

recovery of the bond market. In our opinion, however, the renaissance has also been due to recent optimistic forecasts of increases in share earnings for 1957, along with continued announcements of dividend increases.

Pessimism over a probable "squeeze" in industrial profits has probably resulted in some investment switching from industrial to utility stocks. Many industrial companies seem to be caught between the Scylla of inflated costs and the Charybdis of political resistance to price increases. For example, Washington recently launched two investigations into the rise in oil prices.

The strength in utility stocks occurred despite a substantial volume of equity financing which in January approximated \$77 million compared with less than \$1 million in January, 1956. Natural gas stocks kept pace marketwise with electric utilities despite continued uncertainties over pending legislation for the regulation of independent gas producers.

## Electricity's Place in the National Economy

DONALD S. KENNEDY, president of the Edison Electric Institute and of Oklahoma Gas & Electric Company, in a recent talk before the New York Society

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## PUBLIC UTILITIES FORTNIGHTLY

of Security Analysts made some interesting statistical comparisons between the growth of the electric utility industry and the increase in other yardsticks of the U. S. economy.

A decade earlier Elmer L. Lindseth, who a little later served a term as EEI president, made some forecasts for the growth of the industry over the 30-year period 1946-76. He pointed out that sales of electricity in the U. S. had increased  $10\frac{1}{2}$  times in the previous thirty years (1916-46) and made the following forecasts for future 15-year and 30-year periods, which now compare as follows with the actual rate of gain in the first ten years:

	<i>Projected Increase</i>		<i>Actual Increase</i>
	<i>1946-61</i>	<i>1946-76</i>	<i>1946-56</i>
Kwh Sales . .	130%	425%	177%
Revenues . . .	100	300	152
Kw Capacity .	125	400	139
Plant Account	125	400	142

Mr. Lindseth's projections for the increases in kilowatt generating capacity and in plant investment were the same. But despite a continued inflationary trend in 1946-56 the increase in plant cost (142 per cent) was only slightly more than the increase in kilowatt capacity (139 per cent). Mr. Kennedy attributed the much greater increase in kilowatt-hour sales (277 per cent) to technological advances in plant design, installation of larger generating units, and improved efficiency. The 50 per cent increase in the number of customers (while population gained only 20 per cent), and the increase of 123 per cent in residential use of electricity, were factors in the increase in sales.

**M**R. KENNEDY also made comparisons between the increases in (1) gross national product and kilowatt-hour production, and (2) in disposable personal income and the average annual residential bill for electricity, for each of the decades

1936-46 and 1946-56. The larger increase in national product as compared with kilowatt-hour production in 1936-46 appears to us to be due in large part to the change in the value of the dollar, which declined about 29 per cent during 1936-46. After adjustment for this factor the increase in national product in terms of purchasing power would be reduced to about 80 per cent, we estimate, compared with a gain of over 100 per cent in kilowatt-hour production. Since 1946 the purchasing power of the dollar has declined about 15 per cent more, reducing the actual gain in national product to about 62 per cent, compared with the 170 per cent gain in kilowatt-hour production.

During 1936-46 only a comparatively small proportion of the 140 per cent increase in disposable personal income was expended for purchase of electricity (before adjustment for the decline in price per kilowatt-hour), while in 1946-56, with older electric appliances in supply for the first time in years and important new appliances such as TV, the increase in the average residential bill exactly kept pace with the increase in personal income—though actually there was a bigger gain in the consumption of electricity due to the constantly declining price.

### *Southern California Gas Seeks 6½ Per Cent Return*

**W**ALTER J. HERRMAN, vice president of Southern California Gas Company, recently addressed the Los Angeles Society of Security Analysts on the subject of "Natural Gas—What It Means to Southern California." He pointed out that population growth in California has been extremely rapid, with resulting heavy demands for utility services; but the state has no coal, and its supplies of gas and oil are now entirely inadequate to take care of

## FINANCIAL NEWS AND COMMENT

today's highly industrialized population of 14 million. Gas now supplies about two-thirds of the total heat energy requirements of the state, but about 70 per cent of the gas supply must be imported from Texas and New Mexico, a distance of a thousand miles or more. These imports are equal to about 7.5 per cent of all natural gas produced in the U. S.

According to a recent study made by Stanford Research Institute, fuel requirements should double by 1970, which means that imports of gas into the state will then have to be three times greater than they are now. How will this gas be obtained? Mr. Herrman pointed out that "there are large deposits of coal and shale in Utah and Wyoming. Under present techniques, these solid fuels can be converted to gas and transported to California for about four times what we now pay for natural gas from Texas. In addition, there are large reserves of natural gas still available 1,900 miles to the north in Canada and about the same distance to the southeast in the Gulf of Mexico and in Mexico. While there is strong competition for these supplies from eastern markets, it is probable that large volumes of this gas could be brought to Los Angeles for prices probably not more than twice what we are

currently paying. . . . The problem, therefore, is to supplement existing supplies from time to time from some of these other higher-priced sources. Taking present and new supplies together, average costs should increase only modestly from year to year—probably not much different from the pattern of increases we have been experiencing in the last decade. . . . Increases in gas costs do not mean proportional increases in rates to most consumers. In the residential class . . . doubling in gas costs might mean only a 30 per cent or 40 per cent increase in retail rates. In the case of large industrial customers . . . a change in cost will affect rates in more nearly direct proportion."

**M**R. HERRMAN pointed out that with higher costs, rate increases are inevitable. Pacific Lighting Corporation, one of the larger gas utility systems with annual revenues of \$225 million, serves southern California through its three subsidiaries, Southern California Gas, Southern Counties Gas, and Pacific Lighting Gas Supply (a pipeline and storage company). Gas Supply filed a rate increase application with the public utilities commission in December, 1955, Southern Counties filed last June, and Southern

### CURRENT YIELD YARDSTICKS

	1957 Feb. 8*	1956-57 Range High Low	1955 Range High Low	1954 Range High Low	1953 Range High Low
U. S. Taxable Long-term Bonds . . .	3.17	3.52-2.80	2.95-2.62	2.70-2.41	3.15-2.70
Utility Bonds—Aaa . . . . .	3.74	3.84-3.08	3.19-2.93	3.13-2.86	3.43-3.01
Aa . . . . .	3.81	3.88-3.11	3.26-2.99	3.19-2.92	3.59-3.07
A . . . . .	4.05	4.03-3.27	3.36-3.12	3.37-3.11	3.72-3.23
Baa . . . . .	4.26	4.28-3.49	3.51-3.37	3.72-3.37	3.94-3.50
Utility Pfd. Stocks—High-grade . . .	4.39	4.68-3.92	3.98-3.89	4.09-3.85	4.45-4.01
—Medium-grade . . . . .	4.77	4.84-4.25	4.32-4.19	4.51-4.17	4.87-4.43
24 Elec. Util. Common Stocks . . . .	4.83	4.87-4.45	4.64-4.32	5.23-4.50	5.72-5.01
30 Gas Utility Common Stocks . . . .	4.65	4.83-4.30	4.70-4.29	5.22-4.64	5.66-4.74

\*Approximate date.

Latest available Moody indices are used for utility bonds and stocks; Standard & Poor's index for government bonds.

## PUBLIC UTILITIES FORTNIGHTLY

California very recently filed its application for an increase of about 8 per cent. In its application, the latter company said that if the present trend of declining earnings is allowed to continue through 1957, the rate of return would drop to about 4.8.

The California commission on January 29th issued its decision in the Gas Supply case, granting new rates designed to produce a 6½ per cent return.

In 1957 Southern California Gas expects to spend \$44 million for new construction, increasing its investment per customer to about \$221 by the end of 1957. Present gas rates were fixed in 1955 on the basis of an investment of about \$201 per customer. This means that, without a rate adjustment, the company will have an investment of about \$20 per customer on which it is earning no revenue, resulting in increased revenue requirements of about \$5.6 million a year. The cost of California gas purchased for resale has increased almost 25 per cent, or about \$3.7 million annually, and wages and taxes are currently higher by approximately \$3.4 million a year. These three amounts aggregate \$13.7 million, and the company is asking for \$13.5 million.

**I**N order to sell new securities in the present tight money market, the company is asking for a 6½ per cent rate of return, compared with the 6 per cent allowance in its last rate case in 1954. (Southern Counties originally asked for a 6 per cent rate of return, but subsequently amended its request to a 6½ per cent rate.) Specifically, the company pointed out a higher return is needed for two reasons: (1) The cost of debt capital is up 50 per cent, from 3 per cent in 1954 to 4½ per cent or more today; (2) earnings under a 6 per cent rate of return have been insufficient to support an adequate market price for the stock of the parent company, Pacific Lighting Corporation, which supplies the

subsidiaries with equity capital. In recent months, Pacific Lighting common stock has been selling about 20 per cent above book value—compared with about 75 per cent for most natural gas distribution companies and about 30-40 per cent for other California companies having similar growth problems.

"The problem here," Mr. Herrman stated, "is that new shares must be sold at prices which will pay for approximately as much plant and property as is represented by shares now outstanding. Because of current high construction costs, a market premium approximately in line with the 75 per cent industry average is required so the new shares will be self-supporting. Conversely, if new shares are sold at unduly depressed levels, future earnings and market prices would be further adversely affected."

### *Yields on 1956 Stock Offerings*

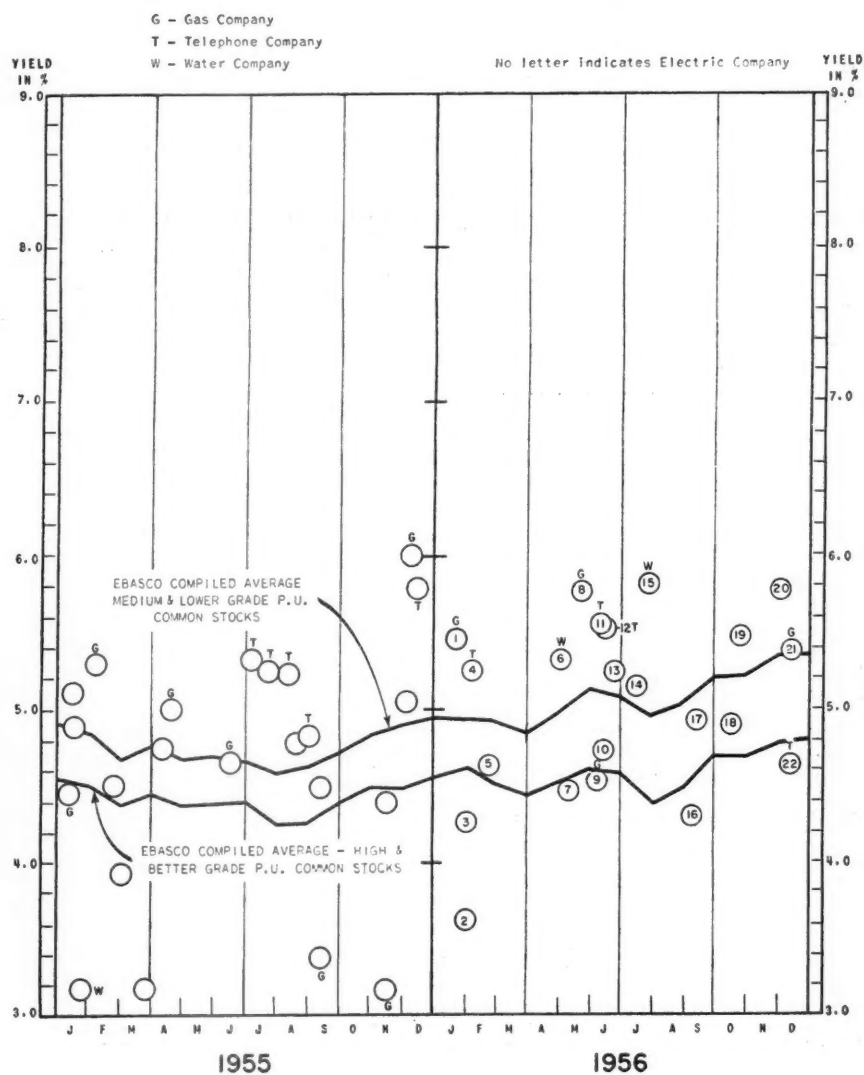
**I**N its recently issued "1956 Analysis of Public Utility Financing" Ebasco Services published the chart which is reproduced on page 323. This indicates that the utility stocks offered directly to the public in 1956 had an average yield (not weighted for the size of the issue) of a little over 5 per cent. Yields on individual issues ranged from 3.63 per cent for the \$14 million offering of Texas Utilities stock a year ago to 5.78 per cent for the \$31 million offering of Public Service Electric & Gas in December. In general, the common stock offerings were more successful on a "cost-of-money" basis than the offerings of bonds and preferred stocks which, from April on, had to be sold at yields well in excess of the Moody averages for similarly rated issues.

Despite the reluctance of many utility companies to dilute common stock earnings any more than necessary, it appears

# FINANCIAL NEWS AND COMMENT

## PUBLIC UTILITIES

### YIELDS TO PUBLIC ON COMMON STOCK OFFERED DIRECTLY IN 1955 AND 1956 (EXCLUDES SUBSCRIPTIONS)



Source, Ebasco Services Incorporated



## PUBLIC UTILITIES FORTNIGHTLY

obvious that many of them are taking advantage of the present strong utility stock market to sell common stocks "while the going is good." For some of them, such as Southwestern Public Service, this will probably be the last equity financing for several years.

### *Proposed Gas Sale Defeated*

**B**y a rather narrow margin, the management of Alabama Gas Corporation

again defeated the group which, over the past two years or more, has been attempting to acquire sufficient control of the company to inaugurate the policy of selling properties on a piecemeal basis to municipalities now served by the company. The management elected five of the board's nine members while the opposition group seated four as compared with their previous three.

Some 87 per cent of the stockholders voted, and of this number 90 per



### JANUARY UTILITY FINANCING

#### PRINCIPAL PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	Amount	Description	Price To Public	Underwriting Spread	Offering Yield	Aver. Yield For Securities of Similar Quality	Moody Rating	Success Of Offering
1/8	\$20.0	Idaho Power 1st 4½s 1987 .....	100.00	.89C	4.50%	3.88%	Aa	a
1/10	12.0	Pacific Power & Lt. 1st 5½s 1987 ....	102.64	1.42C	5.20	4.26	Baa	a
1/14	46.2	Niagara Mohawk Power Conv. Deb. 4½s 1972 .....	100.00	N	4.63	3.94	A	e
1/16	20.0	Louisiana P. & L. 1st 4½s 1987 .....	101.25	1.09C	4.67	3.98	A	a
1/18	20.0	Okla. G. & E. 1st 4½s 1987 .....	101.16	.94C	4.43	3.87	Aa	a
1/22	10.0	Southwestern G. & E. 1st 4½s 1987** ..	101.00	.88C	4.56	3.99	A	a
1/23	35.0	Pacific G. & E. 1st 4½s 1986** .....	100.00	.78C	4.50	3.88	Aa	a
1/23	10.0	Atlantic City Elec. 1st 4½s 1987 ....	101.66	.55C	4.40	3.88	Aa	a
<i>Preferred Stocks</i>								
1/10	9.0	Pacific P. & L. 6.16% Pfd. ....	102.63	2.57C	6.00	4.78	—	b
1/25	1.6	Western Lt. & Tel. 5.20% Conv. (\$25 Par). ....	25.00	N	5.20	4.76	—	g
<i>Common Stock—Offered to Stockholders</i>								
1/8	.8	Northwestern Pub. Ser. ....	15.00	N	6.67	9.17%		i
1/16	4.2	Missouri Pub. Ser. ....	13.00	N	5.54	8.20		k
1/17	7.2	Southwestern Pub. Ser. ....	24.50	N	5.71	7.19		l
1/25	7.8	Louisville Gas & Elec. ....	23.50	.24N	4.68	8.33		m
1/31	27.0	Ohio Edison .....	46.50	.19C	5.68	8.06		n
<i>Common Stock—Offered to Public</i>								
1/8	11.3	Illinois Power .....	56.38	1.52N	5.32	7.04		a
1/14	21.2	Arkansas Louisiana Gas .....	22.00	1.25N	5.45	6.85		j-a

\*Moody's Service. \*\*Cash sinking fund. C—Competitive. N—Negotiated. a—Reported that the issue was well received. b—Reported that the issue was fairly well received. e—Offered to common stockholders on basis of \$100 debenture for each 25 shares. Underwriters' commission 58 cents on each \$100 debenture plus 17½ cents on unsubscribed debentures. Issue convertible at 31¼ to February 1, 1977. It was 96 per cent subscribed. g—Offered to stockholders on 1-for-8 basis, with unsubscribed shares offered to employees. Convertible into 0.8 shares of common. Underwriters' commission 50 cents on unsubscribed shares; soliciting dealers paid 25 cents a share. i—Offered to stockholders on 1-for-10 basis. Underwriters' commission 30 cents on all shares plus 50 cents on unsubscribed shares. Offering 82 per cent subscribed. j—Not company financing. k—Offered to stockholders on 1-for-5 basis. Underwriters' commission 30 cents on all shares plus 50 cents on unsubscribed shares. Issue 24 per cent subscribed. l—Offered to stockholders on 1-for-14 basis, with oversubscription; unsubscribed stock offered to employees. Underwriters' commission 15 cents on all shares plus 15 cents-30 cents on unsubscribed shares; company shared in profits on sale of unsubscribed stock. Soliciting dealers paid 25 cents a share. Issue 134 per cent subscribed. m—Offered to stockholders on 1-for-10 basis. n—Offered to stockholders on 1-for-10 basis, with oversubscription.

Source, Irving Trust Company

## FINANCIAL NEWS AND COMMENT

cent favored the management against only 10 per cent for the opposition. In terms of number of shares 90 per cent of the stock qualified, and of this amount over 56 per cent voted in favor of the management compared with less than 44 per cent for the opposition.

**S**TOCKHOLDERS had been bombarded with the usual series of letters by both sides, debating the major issue relating to potential sale of company properties to municipalities, with continued management of the properties by the company on a fee basis. Proponents of the opposition group had forecast eventual "break-up" values for the common stock as high as \$75 or more a share if they were given a mandate to carry out their program, but the basis for this calculation (which assumed that the properties could eventually be sold for

several times book value) did not seem to be very convincingly developed.

Alabama Gas already has done reasonably well for its stockholders. Share earnings increased from \$1.33 in 1953 to \$2.40 for 1956, and Stone & Webster (engaged to make a comprehensive study of operations) has forecast an increase in earnings to \$2.97 by 1961. The dividend rate has been raised from 80 cents in 1953 to \$1.60 currently, and Stone & Webster foresees a \$2 rate by 1961. The common stock, which sold as low as 10½ in 1952 when it was distributed to the public, has been as high as 38 in 1955 and 1956 and is currently around 30.

The management's victory is encouraging for those who believe that the private enterprise system yields the best results in the long run, in the utility field as elsewhere.



### DATA ON ELECTRIC UTILITY STOCKS

Rev. (Mil.)		2/7/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Incr. In. Sh. Earnings 1951-53	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
\$268	S American G. & E. ....	36	\$1.44m	4.0%	\$2.03De	5%	9%	17.7%	71%	34%
39	O Arizona Pub. Serv. ....	24	1.12	4.7	1.74Oc	26	9	13.8	64	31
10	O Arkansas Mo. Power ....	24	1.24c	5.2	1.95Se	18	8	12.3	64	30
32	S Atlantic City Elec. ....	27	1.30	4.8	1.65De	7	10	16.4	79	30
118	S Baltimore G. & E. ....	34	1.80	5.3	2.32De	13	5	14.6	78	41
6	O Bangor Hydro-Elec. ....	33	1.90	5.8	2.59Se	23	3	12.7	73	31
5	O Black Hills P. & L. ....	25	1.40	5.6	2.06Oc	D5	3	12.1	68	27
91	S Boston Edison ....	52	2.80	5.4	3.40Ap	NC	2	15.3	83	53
19	A Calif. Elec. Power ....	14	.76	5.4	.97De	7	17	14.4	78	35
17	O Calif. Oreg. Power ....	32	1.60	5.0	2.22Au	10	4	14.4	72	37
7	O Calif. Pac. Util. ....	28	1.50	5.4	2.32**De	5	5	12.1	65	29
63	S Carolina P. & L. ....	25	1.10	4.4	1.64De	D3	4	15.2	67	37
28	S Cent. Hudson G. & E. ....	16	.80	5.0	1.10De	10	10	14.4	73	34
21	O Cent. Ill. E. & G. ....	31	1.60	5.2	2.35De	14	8	13.2	68	33
33	S Cent. Ill. Light ....	56	2.60	4.6	3.86De	4	8	14.5	68	41
50	S Cent. Ill. P. S. ....	31	1.60	5.2	2.44Se	7	17	12.7	66	35
13	O Cent. Louisiana Elec. ....	32	1.60	5.0	2.06De	13	6	15.5	78	32
33	O Cent. Maine Power ....	23	1.40	6.1	1.67N	D7	7	13.8	83	33
114	S Cent. & South West ....	36	1.60	4.4	2.29Se	14	13	15.7	70	36
11	O Cent. Vermont P. S. ....	17	1.00	5.9	1.19N	D9	2	14.3	84	28
108	S Cincinnati G. & E. ....	27	1.20f	4.4	2.09Se	17	8	12.9	57	39
6	O Citizens Util. "B" ....	13	.90a	7.0a	1.11Se	2	11	11.7	81	40
104	S Cleve. Elec. Illum. ....	39	1.60	4.1	2.61Se	14	9	14.9	61	47
4	O Colo. Cent. Power ....	26	1.20	4.6	1.74Se	11	5	15.0	69	24
45	S Columbus & S. O. E. ....	31	1.60	5.2	2.16Se	D6	5	14.4	74	37
336	S Commonwealth Edison ....	40	2.00	5.0	2.72Se	D4	9	14.7	71	47
10	A Community Pub. Serv. ....	24	1.20	5.0	1.80Se	1	18	13.3	67	51
2	O Concord Elec. ....	44	2.40	5.5	2.71**	3	2	16.2	89	61

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Rev. (Mill.)	(Continued)	2/7/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Inc. In Sh. Earnings 1951-55	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
65	O Connecticut Lt. & Power ..	20	1.00	5.0	1.28De	17	4	15.6	78	33
21	O Connecticut Power .....	42	2.25	5.4	2.75De	D2	5	15.3	82	42
522	S Consol. Edison .....	45	2.40	5.3	3.20De	4	10	14.1	75	40
208	S Consumers Power .....	48	2.40	5.0	3.33De	8	5	14.4	72	41
74	S Dayton P. & L. ....	45	2.40	5.3	3.81De	13	4	11.8	63	38
34	S Delaware P. & L. ....	45	1.80	4.0	2.35Se	5	10	19.1	77	32
220	S Detroit Edison .....	39	2.00	5.1	2.36De	D3	11	16.5	85	42
120	A Duke Power .....	28	1.20	4.3	1.84Se	8	22	15.2	65	54
95	S Duquesne Light .....	36	2.00	5.6	2.44De	4	4	14.8	82	35
27	O Eastern Util. Assoc. ....	34	2.20	6.5	2.62N	6	O	13.0	84	36
2	O Edison Sault Elec. ....	16	.80	5.0	1.13Se	4	24	14.2	71	40
10	O El Paso Elec. ....	43	2.00	4.7	2.65Oc	15	8	16.2	75	39
11	S Empire Dist. Elec. ....	20	1.20	6.0	1.59De	9	1	12.6	75	30
4	O Fitchburg G. & E. ....	50	3.00	6.0	3.52**	8	3	14.2	85	55
43	S Florida Power Corp. ....	53	1.80	3.4	2.80Se	30	19	18.9	64	34
110	S Florida P. & L. ....	47	1.28	2.7	2.59De	26	16	18.1	49	40
163	S General Pub. Util. ....	36	1.90	5.3	3.02Se	15	12	11.9	63	39
6	O Green Mt. Power .....	15	1.00	6.7	1.20Se	4	7	12.5	83	37
51	S Gulf States Util. ....	36	1.60	4.4	2.17Oc	2	17	16.6	74	31
22	A Hartford E. L. ....	57	2.88	5.1	4.12De	D1	12	13.8	70	49
5	O Haverhill Elec. ....	42	2.35	5.6	2.62**	34	—	16.0	82	100
21	O Hawaiian Elec. ....	38	2.50g	6.6	3.45De	9	—	11.0	74	40
66	S Houston L. & P. ....	52	1.60k	3.1	2.80De	11	20	18.6	57	42
8	O Housatonic P. S. ....	22	1.50	6.8	1.41**	19	O	15.6	106	54
27	S Idaho Power .....	31	1.40	4.5	2.18De	16	7	14.2	64	36
78	S Illinois Power .....	59	3.00	5.1	3.98N	19	6	14.8	75	35
40	S Indianapolis P. & L. ....	28	1.50	5.4	2.07Se	8	2	13.5	72	38
19	S Interstate Power .....	14	.80	5.7	1.05Se	4	6	13.3	76	31
30	O Iowa Elec. L. & P. ....	29	1.50	5.2	2.28Oc	18	10	12.7	66	31
31	S Iowa-Ill. G. & E. ....	31	1.80	5.5	2.45Se	6	2	12.7	73	40
37	S Iowa Power & Lt. ....	27	1.60	5.9	2.03De	—	2	13.3	79	35
30	O Iowa Pub. Serv. ....	16	.80	5.0	1.10De	9	3	14.4	72	33
13	O Iowa Southern Util. ....	22	1.28	5.8	1.83De	7	7	12.0	70	36
56	S Kansas City P. & L. ....	39	2.00	5.1	2.77N	18	8	14.1	72	35
30	S Kansas G. & E. ....	29	1.32	4.6	2.24De	16	9	12.9	59	26
40	S Kansas Pr. & Lt. ....	25	1.30	5.2	1.96Se	24	9	12.8	66	27
37	O Kentucky Util. ....	25	1.28	5.1	2.05Se	D2	9	12.2	62	35
7	O Lake Superior D. P. ....	24	1.20	5.0	1.69Se	13	4	14.2	71	38
6	O Lawrence Electric .....	29	1.75	6.0	1.87**	34	D	15.5	94	62
17	S Long Island Ltg. ....	23	1.20	5.2	1.55Se	20	4	14.8	77	34
52	S Louisville G. & E. ....	27	1.10	4.1	1.88De	4	4	14.4	59	35
7	O Lowell Elec. Lt. ....	56	3.00	5.4	3.64**	19	D	15.4	82	59
9	O Lynn G. & E. ....	32	1.60	5.0	2.03**	1	8	15.8	79	76
8	O Madison G. & E. ....	46	1.80	4.0	4.04Ty	NC	10	11.4	45	47
4	A Maine Pub. Serv. ....	16	1.08	6.8	1.24De	2	3	12.9	87	31
5	O Michigan G. & E. ....	47	1.60b	6.4b	4.07Se	16	13	11.5	39	35
159	S Middle South Util. ....	34	1.60	4.7	2.18De	13	6	15.6	73	35
26	S Minnesota P. & L. ....	27	1.40	5.2	2.08De	1	8	13.0	67	34
2	O Miss. Valley P. S. ....	30	1.40j	4.7	2.15De	13	3	14.0	65	31
10	A Missouri Pub. Serv. ....	13½	.72h	5.3	1.05N	24	19	12.9	69	29
6	O Missouri Util. ....	27	1.36	5.0	1.79De	—	3	15.1	76	32
37	S Montana Power .....	44	1.80	4.1	3.23De	7	5	13.6	56	36
130	S New England Elec. ....	17	1.00	5.9	1.24Se	2	O	13.7	81	33
40	O New England G. & E. ....	17	1.05	6.2	1.51N	10	5	11.3	70	40
44	O New Orleans P. S. ....	46	2.25	4.9	2.52N	D5	O	18.3	89	40
2	O Newport Elec. ....	18	1.00	5.6	1.40Ja	16	O	12.9	71	34
77	S N. Y. State E. & G. ....	38	2.00	5.3	3.00De	11	6	12.7	67	38
210	S Niagara Mohawk Pr. ....	30	1.80	6.0	2.22Oc	—	6	13.5	81	34
75	O Northern Ind. P. S. ....	37	1.92	5.2	2.86Se	4	6	12.9	67	33
118	S Nor. States Power .....	17	.90	5.3	1.21De	4	9	14.0	74	33
9	O Northwestern P. S. ....	17	1.00	5.9	1.38Oc	NC	4	12.3	72	25
129	S Ohio Edison .....	49	2.64	5.4	3.79De	7	9	12.9	70	38
48	S Oklahoma G. & E. ....	40	1.80	4.5	2.46De	5	10	16.3	73	30
15	O Otter Tail Pr. ....	28	1.60	5.7	2.15De	D2	9	13.0	74	36
443	S Pacific G. & E. ....	49	2.40	4.9	3.51Je	10	16	14.0	68	33

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Rev. (Mill.)	(Continued)	2/7/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Incr. In. Sh. Earnings 1951-55	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
44	O Pacific P. & L. ....	31	1.60	5.2	1.98Oc	NC	4	15.7	81	28
123	S Penn Power & L. ....	45	2.40	5.3	3.46Oc	12	9	13.0	69	29
210	S Phila. Elec. ....	39	2.00	5.1	2.59De	8	5	15.1	77	40
32	O Portland Gen. Elec. ....	22	1.20	5.5	1.69N	2	6	13.0	71	39
58	S Potomac Elec. Pr. ....	21	1.10	5.2	1.50Se	16	7	14.0	73	40
77	S Pub. Serv. of Colo. ....	40	1.80i	4.5	2.83Se	11	7	14.1	64	38
299	S Pub. Serv. E. & G. ....	32	1.80	5.6	2.10De	D7	2	15.2	86	37
67	S Pub. Serv. of Ind. ....	39	2.00	5.1	2.48N	4	3	15.7	81	33
26	O Pub. Serv. of N. H. ....	17	1.00	5.9	1.23Oc	—	13	13.8	81	36
11	O Pub. Serv. of N. M. ....	14	.68	4.9	1.12Se	18	4	12.5	61	33
23	S Puget Sound P. & L. ....	26	1.36	5.2	1.62Se	12	10	16.0	84	56
52	S Rochester G. & E. ....	28	1.60	5.7	2.24De	12	8	12.5	71	36
17	O Rockland L. & P. ....	17	.80	4.7	.97**	20	11	17.5	82	29
8	S St. Joseph L. & P. ....	24	1.40	5.8	1.81De	7	7	13.3	77	40
45	S San Diego G. & E. ....	23	.96	4.2	1.52Se	40	2	15.1	63	40
8	O Savannah E. P. ....	43	1.68	3.9	2.74N	23	5	15.7	69	28
9	O Sierra Pacific Pr. ....	22	1.20	5.5	1.88De	33	14	11.7	64	27
195	S So. Calif. Edison ....	47	2.40	5.1	3.48De	5	3	13.5	69	37
38	S So. Carolina E. & G. ....	21	1.10	5.2	1.48N	11	40	14.2	68	29
6	O Southern Colo. Pr. ....	15	.70	4.7	1.29N	6	11	11.6	54	37
228	S Southern Co. ....	23	1.10	4.8	1.54De	14	7	14.9	71	32
16	S So. Indiana G. & E. ....	31	1.60	5.2	1.91De	D15	5	15.7	84	35
5	O So. Nevada Power ....	17	1.00	5.9	1.39Se	D5	41	12.2	72	34
1	O Southern Utah Power ....	16	1.00	6.3	1.42Oc	61	D	11.3	70	38
3	O Southwestern E. S. ....	19	1.08	5.7	1.64N	—	4	11.6	66	27
39	S Southwestern P. S. ....	27	1.40	5.2	1.79De	19	4	15.1	78	30
21	A Tampa Elec. ....	29	1.20	4.1	1.65N	24	10	17.6	73	42
127	S Texas Utilities ....	39	1.44	3.7	2.32N	14	13	16.8	62	38
35	S Toledo Edison ....	13½	.70	5.2	1.01De	D8	5	13.4	69	30
12	O Tucson G. E. L. & P. ....	30	1.20	4.0	2.02De	27	10	14.9	59	33
119	S Union Elec. of Mo. ....	28	1.52	5.4	1.76Se	4	13	15.9	86	37
30	O United Illuminating ....	26	1.30	5.0	1.61**	3	9	16.1	81	51
5	O Upper Peninsula Pr. ....	29	1.60	5.5	2.02Se	D8	14	14.4	79	36
38	S Utah Power & Lt. ....	25	1.10	4.4	1.70De	10	8	14.7	65	42
118	S Virginia E. & P. ....	45	1.80	4.0	2.78De	10	13	16.2	65	34
26	S Wash. Water Power ....	36	1.88	5.2	2.29De	8	14	15.7	82	44
127	S West Penn Elec. ....	27	1.50	5.6	2.14N	6	10	12.6	70	29
64	O West Penn Power ....	50	2.40	4.8	3.24Se	1	13	15.4	74	33
11	O Western Lt. & Tel. ....	32	2.00	6.3	3.03Se	13	7	10.6	66	31
24	O Western Mass Cos. ....	41	2.20	5.4	3.08Se	1	12	13.3	71	52
95	S Wisc. El. Pr. (Cons.) ....	31	1.60	5.2	2.31Se	D5	16	13.4	69	39
37	O Wisconsin P. & L. ....	26	1.28	4.9	1.87De	9	4	13.9	68	35
34	S Wisconsin P. S. ....	23	1.20	5.2	1.78Oc	5	7	12.9	67	35
Averages .....				5.2%			8%	14.3	73%	
Foreign Companies										
188	S Amer. & Foreign Pr. ....	15	\$ .80	5.3%	\$2.10Je	8%	2%	7.1%	38%	46%
139	A Brazilian Trac. ....	9	.75n	8.3	1.18**	D7	D	7.6	64	72
63	A British Columbia Pr. ....	46	1.20	2.6	2.05**	37	27	22.4	59	27
16	A Gatineau Power ....	31	1.40	4.5	2.06**	5	15	15.0	68	30
31	O Mexican L. & P. ....	14	—	—	1.80**	27	117	7.8	—	45
11	A Quebec Power ....	29	1.20	4.1	1.73**	11	12	16.8	69	48
45	A Shawinigan Wtr. & Pr. ....	87	1.80	2.1	3.48**	30	22	25.0	52	35

A—American Stock Exchange. B—Boston Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. \*Based on average number of shares. \*\*Calendar year 1955. a—Estimated annual rate. The "A" stock receives stock dividends. b—Also 3 per cent stock dividend December 31, 1956, which is included in the yield. c—Also 2 per cent stock dividend January 10, 1956. f—Also 5 per cent stock dividend August 15, 1956. g—Cash dividend of \$2.50 in 1956 includes 30 cents extra; 10 per cent stock dividend also paid April 30, 1956. h—Also stock dividend of one share for each 200 held September 12, 1956. i—Also 10 per cent stock dividend November 16, 1956. j—Also 10 per cent stock dividend August 31, 1956. k—Also 5 per cent stock dividend December 17, 1956. m—Also 2 per cent stock dividend January 10, 1956; 3-for-2 split June 15, 1956. n—Also 5 per cent stock dividend December 28, 1956.



## What Others Think

### The Uses of Solar Energy

WITH all signs pointing to an increase in industrialization, not only in the United States but in virtually all the nations of the world, the subject of future energy supply has ceased to be academic and is increasingly attracting the attention of the industrial community. Predictions of a tremendous increase in population and indications that within a century the world will likely require fifty times as much energy as it is utilizing today lend unusual interest to efforts directed toward the development of solar energy as a primary source of power for the future.

Industry's present concern with solar energy centers on the solar furnace in which scientists can produce and control temperatures of more than 6,000 degrees Fahrenheit, about 60 per cent as hot as the surface of the sun. Recently, representatives of more than 50 companies took part in a solar furnace symposium at the Westward Ho hotel in Phoenix, Arizona. The symposium was sponsored by the Association for Applied Solar Energy and cosponsored by Arizona State College at Tempe, Stanford Research Institute, and the University of Arizona.

An indication of the problems involved in capturing solar energy and its possible future application was outlined in a paper presented to the symposium by Dr. C. C. Furnas, Assistant Secretary of Defense for Research and Development. Pointing

out that about 32,000 times as much energy falls on the earth's surface each day in the form of rays from the sun as the entire human race utilizes in that same twenty-four hours, Furnas listed three major obstacles in the path of more successful development of solar energy:

1. The energy comes to us only in the form of electromagnetic radiation. Visible light accounts for nearly half of the energy of sunlight; a very small amount is in the invisible ultraviolet end and the remaining one-half is in the heat rays, or infrared. Although all of this light and these heat rays are very useful—as a matter of fact essential—they do not cover all of our needs. We very frequently, for instance, want our energy in the form of electricity.

2. The energy which comes to us is not very concentrated—it is at a low potential. The heat input to the earth from the sun, at the outer edge of the atmosphere, is about 2.0 small calories per square centimeter per minute. Because of absorption by the atmosphere, only about two-thirds of that, on the average, reaches the surface of the earth. This concentration of energy is just about enough to keep us comfortable when we are unclothed on a warm summer day—delightful, but not particularly powerful — not powerful



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enough to operate a steam engine. We have found it necessary for industrial activities to use energy sources which are hundreds or thousands of times more concentrated than this. The sun itself, of course, is a very concentrated source of energy; its surface has a temperature of about 5,500 degrees centigrade. But it is 93 million miles away. Since the radiation spreads out spherically, it is not very concentrated when it reaches us. Hence, one of the basic problems in the use of solar energy is the devising of ways and means of re-concentrating it.

3. The third drawback is the fact that the sun's energy comes to us intermittently; the well-known phenomena of daylight and darkness, and cloudy weather. Thus, if we solve the first two problems, that of getting it into the form we want it and the problem of concentrating it from its low potential, we still have the problem of storage, if we are going to have a source of energy that we can count on continuously.

**T**HE various schemes, both past and present, to tap the energy of the sun may be divided into two major categories, according to Furnas—those which have not embraced any particular method for the concentration of the energy and those where concentrators of various kinds have been employed. In the first category are found windmills, wave motors, water power, heating buildings, air-conditioning systems, and hot-water heaters. These methods all use the heat of the sun at about the same potential at which it arrives at the surface.

Windmills, which utilize the wind caused by uneven solar heating of sections of the earth, are, as Furnas notes, "a vanishing race," while wave motors are use-

ful only when the sea is rough enough to produce breakers but not so rough as to endanger the installation to the extent of washing it into the sea. "Wave motors have never quite made the grade," said Furnas, "and I doubt if they ever will." Power from falling water is the most important use of solar energy today, even though indirect, Furnas said. Unfortunately, he pointed out, its quantity is limited. Only one per cent of the energy used in the United States is supplied by hydro power, and though it is conceivable that this amount might be doubled, the proportion will always remain small.

Substantial progress has been made in heating buildings directly with solar energy, Furnas reported. The first requisite, he explained, is that there be a central heating system, some means of storing the heat for use at night and on cold and cloudy days.

**"T**HE storage methods principally used consist of the heating of a bed of stones, the heating of fairly substantial amounts of water, or making use of the latent heat of the decomposition of hydrated compounds, such as Glauber's salt," Furnas said. "In these experimental houses, the thermal units come practically free, but it is necessary to pay the cost of extra equipment. The solar heating merely supplements conventional heating. The really expensive part turns out to be in the provision of the means for storing the heat for dark and cold periods, which calls for substantial capital costs. In summary, the results to date seem to be that, for the middle and lower latitudes in the United States, the break-even point for solar heating is an installation which will supply 75 to 80 per cent of the total heat required for an individual dwelling. If you put in enough storage capacity to do about that amount, you save a little bit of

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money over a period of years. If you try to make an installation which will supply *all* of the heat from solar means, then it costs you more than if you were to use our presently accepted methods of heating homes. Perhaps some ingenious trick is in the offing to change this proportion of feasible heating, but it is not in sight at the moment. Even if it does come, it will not be particularly earth shaking for the individual, because the capital costs of installation inherently are going to be greater than for gas or oil or coal, provided we continue to require the present level of comfort. However, in the national picture, solar heating is a very worthy venture, because we use about one-third of our total fuel to heat our buildings, and if a substantial number of the houses were largely heated by the sun, it would represent a significant total savings of our natural fuel resources."

WITH respect to air-conditioning systems, progress has not been as marked, Furnas continued. Attempts have been made to devise air-conditioning systems for the cooling of buildings and for food refrigeration, using solar energy. These systems essentially work on the principle of the gas refrigerator, in which the latent heat of the condensation of a vapor to a liquid is on one side of the cycle, and the reverse latent heat of evaporating a liquid to a vapor is on the other side of the cycle. The evaporating part of the cycle cools the house. According to Furnas, the experiments thus far have all led to quite expensive equipment and the economics are doubtful. But he advises against their abandonment at this point, arguing that a practical, balanced system, using both solar heating in the winter and solar cooling in the summer might work out with a fair degree of economy. If it broke even for the individual home owner,

he said, then it would be a national benefit to use the solar heat, as here again it would save a great deal of the material in the national fuel bin.

There are at least several hundred solar water heaters in homes in the southern part of the United States, Furnas said, some homemade and some commercially produced. Enthusiasts claim very satisfactory performance, although there are the cynics who have sometimes found that the sun had been misbehaving for too long a time just when they wanted a hot bath. "On the whole," Furnas said, "it can be said that these devices, properly installed, are beyond being a novelty and are practical and that they save a modest amount of fuel and will probably come into increasing use in the lower latitudes, but their use will not make any great impact on the national supply of energy."

AMONG the devices discussed by Furnas where concentrators of various kinds have been used were cook stoves, installations for the distillation of sea water, and solar furnaces. The old reflector oven used by campers to bake biscuits around a campfire has been refined to use solar heat through the concentrating effect of a parabolic mirror focused on a cooking utensil. When the sun is shining, these gadgets give quite a satisfactory source of heat for the cooking of food, Furnas said. The device has a particular value in regions where there is no or very little fuel of any kind. The disadvantages, however, include the cost of the gadget which is apt to be high for people living in such regions, plus the fact that it can only be used when the sun is shining. Price reduction brought about by large-scale manufacturing would, of course, extend the use, Furnas added, while further development may also improve the practicality.

With respect to distillation of sea

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water, Furnas noted that in semitropical regions the solar energy on an acre of ground on an average day is enough to evaporate about 10,000 gallons of water. The fresh water condensate from such an operation would cover an acre of ground to the depth of 0.4 inch of water. Said Furnas:

... These data give some hope for the economical recovery of fresh water from sea water, for domestic, industrial, or even irrigation purposes. The energy is free, but the apparatus to effect the evaporation and subsequent condensation of vapor is not. Such apparatus must be large and hence—with the present state of the art—expensive.

The equipment tried thus far for solar sea water distillation resembles a greenhouse. The "boiler" is under glass. It is a shallow pan with a blackened absorbing surface, filled with sea water. The "condenser" is the inclined transparent surface (glass) which allows the solar radiation to come through and doubles as the dissipater of the heat of condensation of the vapor, by cooling due to the ambient air or wind.

A large inclined plate still of this type was built at Las Satinas, Chile, in 1872. It covered much more than an acre and produced about 6,000 gallons of fresh water per day. The average thermal efficiency of the operation was about 35 per cent.

Recent work in this country has led to an improved design of still which has operated with an efficiency of over 60 per cent.

This begins to look interesting. Still more interesting is some recent small-scale experimentation on "multiple-effect" solar stills. In this process, the heat absorbed by evaporation is recaptured in condensation and made to

evaporate additional water. It's an old principle, long used in steam-heated evaporators, but it has not been applied to solar stills before. It is reported that a small "ten-effect" experimental solar still has been developed, which requires no expensive mechanical equipment and, from a given area exposed to sunshine, can produce about six times as much water as a single-effect still. If we could just get the apparatus for very low cost per square foot we might begin to get somewhere.

THE great need for fresh water in many parts of the world naturally makes solar distillation an intriguing idea, Furnas said. But he pointed out that fresh water so produced would still cost about ten times too much to be practical for irrigation purposes. Ingenuity and hard work are called for to bring about the necessary cost reduction.

Principal attention is being given the solar furnace, the theme of the symposium, as a research tool. Describing its operation, Furnas explained:

... By various ingenious reflector and mirror systems, it is possible to get very high temperatures in very small areas, thus taking advantage of the high surface temperature of the sun, even though it is 93 million miles away. The modern solar furnaces are essentially sophisticated refinements of the old-time burning glass. With the best system that has yet been designed, it should be possible to obtain spot temperatures of nearly 4,000 degrees centigrade. This is much better than any laboratory devices we have to date. Further, the entire equipment can be free from atmospheric contamination, it can be carefully controlled, and can be shut off and on almost instantly. These are great advantages in certain types of re-

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"WE FOUND HER IN THE YELLOW PAGES"

search work, but the equipment is also very expensive. For instance, the solar furnace for the U. S. Air Force which is now being designed and which we hope will be constructed soon in New Mexico, will cost several million dollars. The specimens to be heated can only be about five inches in diameter. Don't mistake me—I think this is very worth while because the solar furnace is a unique research tool and can give results which cannot be duplicated in any other way. I simply want to point out that this type of apparatus, while of great potential value for research, is

hardly practical as a power source, in the ordinary sense of the word.

SUMMARIZING, Furnas said the proper impression to carry away at this time is that "there are several fairly interesting possibilities for the use of solar energy but that none of them represent a panacea for the future energy demands of the world." But the situation as Furnas sees it is far from discouraging. Pointing to the hundreds of millions of people living in parts of the world where sunshine is plentiful, technological development low, and other forms of power either nonex-

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istent or very expensive, Furnas said that in some of these regions solar cook stoves and hot-water heaters should be particularly helpful. Solar house-heating systems, even with their disadvantages, would represent a great advance in the standard of living for many; and inexpensive solar refrigerators should help measurably in the preservation of food. Widespread cultivation of the special organisms such as *Chlorella* might help to remove millions from the semistarvation list, Furnas added, while solar stills for the production of fresh water near seacoasts or brackish lakes could bring great benefits.

**A**s for the American economy, the situation is different. Said Furnas:

... We use an inspiring array of power-hungry machines that require a continuous, concentrated energy supply. Discounting the small percentage of hydroelectric power, we have come to rely almost entirely on the fossil fuels—coal, oil, and gas. The daily supply of sunshine is hardly a capable competitor to these sources—when they are available.

But these fossil fuels—coal, gas, and oil—will eventually be depleted and probably sooner than most people think. Every indication is that the petroleum products will begin tapering off as far as this country is concerned, in this generation. We will have to begin relying more and more on foreign petroleum sources. Remember that the use of power is rising at a rapid and exponential rate and although we still have a lot of coal, oil, and gas in the ground, the demand is catching up with great leaps and very long bounds. So it is time for us to begin to become constructively worried about it. The fossil fuels will become too precious to use as fuel because they will have such a high value

in the chemical synthesis field. They will become analogous to wood. Wood is now much too precious to use as fuel to any great extent. As far as the bulk of America is concerned, it is only used for campfires and for esthetic purposes in fireplaces around Christmas time.

**A** PARTIAL answer to America's problems, Furnas said, obviously lies in the development of nuclear power. He predicted that within a decade the cost of electrical power produced from nuclear reactors will be competitive with other sources of power in the United States. He noted that throughout the world the known reserves of uranium and thorium are enough to supply the necessary energy, even with the anticipated rise in use, for some 500 years. Moreover, the tremendous amount of uranium and thorium in deposits too low grade to be usable may eventually be extracted from such deposits with the improvement in techniques. The next step, he said, probably will be the production of power from the controlled thermonuclear reaction.

But none of these likely possibilities cancels out the use of solar energy, Furnas emphasized. Solar heating and cooling of houses and heating water will be moderately worth while where the climate is favorable, he said, and the raising of unconventional foodstuffs, such as *Chlorella*, by concentrated methods may prove to be a real necessity as the world population increases. Solar furnaces which produce high temperatures are going to be used rather extensively for research work. "Finally," he concluded, "I can visualize the sun's rays as an important part if not the sole source of energy for the production of inexpensive fresh water from the sea. This is a process, however, where some combined efforts are called for.



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There are many valuable mineral elements in sea water, albeit in dilute concentrations. As our mineral resources approach depletion, we are going to become more interested in their recovery. At present we are only recovering two—bromine and magnesium. Eventually we should recover a dozen more. Is it feasible to think of a physical-chemical process plant where sea water and sunshine are the input materials and fresh water plus a dozen separated

mineral substances are the products? By such an approach, could these necessary materials for civilization be produced economically?"

Furnas says he does not know the answers, but he trusts that someone, some day, will make a serious effort to find out. At least it has been demonstrated that the sun can be corralled, domesticated, and put to work. It is up to research to find the best ways to utilize it.

## Atomic Energy and Free Enterprise

TEN years ago, the Atomic Energy Commission assumed responsibility for civilian atomic development under the Atomic Energy Act of 1946. Experience under the 1946 act, which provided for government monopoly over development of this new energy source, demonstrated the practical possibilities for its industrial application and led to the conclusion that the most effective means to accomplish commercial use of atomic energy for the benefit of all was free enterprise. This view found expression in the Atomic Energy Act of 1954 which included an effective compromise between the need for close government control and the desire for the fullest play for free markets.

In a recent address to the section on antitrust law of the New York Bar Association, Attorney General Brownell outlined the unique challenge presented to the Department of Justice in implementing the 1954 act. In this evolving industry, the department's principal rôle has been the adoption of preventive measures to foster competition, rather than remedial litigation to undo the effect of anticompetitive action already taken.

The main feature of the Atomic Energy Act of 1946 was the establishment of a strict government monopoly over the use and application of atomic knowledge. Pri-

vate industry was barred from owning fissionable material or facilities to produce it. The use of such materials by private concerns was also barred. They could participate in the development of atomic energy only under licenses from the commission. Moreover, any patents developed, even in the nonmilitary field, were made available to the government and to all companies operating under commission licenses.

THE period of government monopoly, however, saw marked changes in the conditions which had determined the government's policy. Brownell explained:

... Great strides were made in basic research and in military applications. Equally important, other countries were already turning to development of commercial applications for atomic power. The task of foreign countries was easier than ours. For their higher present cost of power meant that commercial atomic power might compete with conventional power at an earlier state of reactor development. By 1953, Great Britain and the Soviet Union were already making great headway in this effort. The United States was thus confronted with a world-wide race to develop commercial atomic power.

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Against this background, the purposes of the Atomic Energy Act of 1954 became clear. Still necessary was development of atomic weapons within the existing framework of controls and secrecy. Feasible now, however, was international co-operation with our Allies in atomic matters. Finally, it was necessary to open the field to widespread industry participation to achieve rapid development of commercial atomic applications.

Consequently, this legislation sought to end total governmental monopoly. It relaxed the prohibitions over private participation in atomic developments, allowed freer access to hitherto restricted technological data, and permitted private ownership and use of production and utilization facilities. In effect, a measure of competition was now permitted within the framework of an industry still closely regulated.

SEVERAL provisions of the 1954 act deal directly with safeguards to preserve free competition. According to Brownell, it is in the area of licensing and patents that the extent of competition in civilian development of atomic energy will largely be determined. Reviewing the special problems arising in this area, he said:

... During the period of government monopoly, much of AEC operation and research had been performed by private firms under contract. Private firms had thus gained access to a great deal of restricted data, acquired the necessary scientific staffs, and had accumulated a mass of technological know-how. Without effective controls to offset these advantages, it was feared that potential newcomers to the industry would be deterred by the dominant position these firms would quickly achieve.

Provisions of the act designed to insure competition received careful consideration in the light of these special problems. Many conflicting proposals were made. Not surprisingly, therefore, the terms of the resulting statute are, in large part, the product of compromise.

Brownell noted that the statute's most basic competitive safeguard is provision for normal application of antitrust to the civilian atomic industry. "Section 105 of the act carefully reaffirms our belief that these laws are basic to the maintenance of free enterprise," he said. "In addition, that section requires that the commission report promptly to the Attorney General any indication that any private use of special nuclear material or atomic energy may raise antitrust problems."

A PART from this general affirmation, other provisions of § 105 treat particular competitive problems, Brownell continued. That section provides, for example, that any grant of a commercial license must be preceded by advice from the Attorney General whether its issuance would tend to create or maintain a situation inconsistent with the antitrust laws. He explained:

This provision, patterned after earlier surplus property disposal laws, makes available to the commission analysis of any special anticompetitive considerations presented. Antitrust advice, however, need not be controlling. For the commission must also weigh the necessities of defense and security and public health and safety. None the less such a procedure provides an effective means to insure that knowledge of possible antitrust difficulties required to foster competition.

As the act now stands, then, the com-

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"BEST DAM BUILDERS WE EVER HIRED!"

mission must issue commercial licenses on a nonexclusive basis to all applicants who meet the conditions the act sets forth. This provision promises the widest possible participation of all interested in entering the atomic field. It reduces the possibility that the limited number of government contractors already in the field will retain their exclusive position.

That possibility is further decreased by the action of the commission in permitting vital dissemination of restricted data. Dissemination opens up to new-

comers great areas of technological information hitherto available only to the contractors under the earlier government program.

CONCERN with anticompetitive considerations does not end with issuance of any commercial license, Brownell emphasized. Licenses, once issued, are still subject to the antitrust laws. And licenses may be revoked by the commission if subsequent information would warrant refusal of a license on an original application. The Department of Justice inter-

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pretends this language to include instances where a later investigation reveals anti-competitive factors "unknown to this department at the time the license was issued," Brownell said.

The Attorney General took note of certain criticisms directed toward the patent provisions of the present law. Objections have been raised against any curtailment of traditional patent rights which would obstruct full and speedy development. But, Brownell said, "technology's importance in this highly scientific field inspired the belief that curtailment of certain patent rights was necessary for competition to flourish. Particularly, the technical advantages gained by AEC contractors before the passage of the act suggested that important areas might be closed off to newcomers."

**T**HE act, as passed, provides that any patent issued before September 1, 1959, may be declared by the commission, under certain conditions, to be affected with a public interest. The commission itself may then use or license the invention or discovery covered by the patent. Said Brownell:

This provision has been criticized on the grounds that the conditions governing compulsory licensing are too strict and the period during which it may be invoked too short. Significantly, however, no special problems seem to have arisen under this provision. Moreover, other sections of the act relating to patents reinforce this section's effort to insure equality of opportunity.

Section 159, for instance, carefully preserves the government's paramount rights to invention made by the individual concerns in the course of their work under contract. Similar provisions were included in larger contracts during the period of government monopoly.

An even more significant protection for the general public is found in § 152. It provides a statutory affirmation of the government's rights in inventions resulting from work under AEC contracts and extends those rights to other areas. Unless the commission should, in its discretion, waive its claim, any invention made *or conceived* under any contract, arrangement, "or other relationship" with the commission, regardless of whether the relationship involved the expenditure of funds by the AEC, "shall be deemed to have been made or conceived by the commission." This means that no person or firm can gain private patent advantages from ideas originating through past or future government connections.

**A** FINAL patent safeguard, Brownell continued, is the provision respecting antitrust violations in the use of atomic energy patents. The statute specifically authorizes the courts to require reasonable royalty licensing of patents involved in antitrust violations. While courts already have this power included within their general equity remedies, Congress has here clearly directed appropriate use of that remedy in this field.

Brownell admitted that opinions differ as to the effectiveness of the various competitive safeguards in the act. While recognizing that the act may not be perfect, the Attorney General feels that most criticism of the act's antitrust safeguards lies in the realm of theory. He stated:

In its actual operation I believe the act appears adequate for the proper development of our free enterprise system at a time when both atomic developments and regulatory mechanisms to control them are still experimental. It is equally important that it grants the Atomic Energy Commission sufficient

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flexibility to meet the diverse major objectives of the act.

The Department of Justice is eager to meet the unique challenge presented by this new industry. We have an important rôle to play in fostering competition. We here have an opportunity to utilize preventive rather than merely remedial action. We must act to prevent anticompetitive tendencies before they mature into monopolistic patterns.

Since the passage of the 1954 act, the Department of Justice has worked closely with the Atomic Energy Commission, Brownell said. It has assisted the commission in formulating regulations governing civilian participation in atomic energy developments to insure the implementation of the competitive safeguards in the act. It has also consulted on general competitive problems involved in development of this new industry.

**A**N example of the problems so far raised concerns the issuance of research and development licenses to private firms under § 104 of the act. "Because of the heavy expenses involved in construction and operation of experimental power reactors and other types of laboratory equipment, there has been a tendency to organize joint participation among a number of firms," Brownell said. "Although the companies seeking such licenses jointly may not presently be engaged in the same industries, such activities still require considerable careful study, from a competitive point of view, both as to present actions in the experimental stages and in future activities when the commercial stage is reached. In the case of public utilities, I might add, such licenses for joint activities also raise the possibility of questions under the Public Utility Holding Company Act."

The volume of competitive problems in

this field has not yet been large, Brownell noted. Aside from the use of radioisotopes, activities in the field are still completely experimental. But, he added, this experimental work shows that the industry will not be limited to a mere handful of previous participants. "Virtually all segments of industry are alert to the possibilities of this new and dynamic field," he said. He pointed out that more than a thousand persons and firms have already been granted access permits by the commission to obtain technological information.

**B**ROWNELL promised that the Department of Justice would keep a close eye on the developing situation in atomic energy. "We will continue close consultations with the commission," he said, "and will advise them immediately of any situation which, in our judgment, may appear to present a serious tendency toward anticompetitive concentration. We are also prepared to inform the Congress, without delay, of any need which may develop for changes in the basic statutes to provide additional competitive safeguards. He continued:

The techniques of preventive action, though not entirely new to antitrust enforcement, here find their greatest opportunity for useful application. Preventive action must be applied wisely and well if we are to realize the great potential of this new industry for our future industrial well-being. For we are dealing here with a promise of future energy supply greater than all the unmined coal, all the untapped oil, and all the hydroelectric capacity now existing in the United States. As the estimates of expanding future energy requirements indicate that conventional power sources may not be adequate for the task, the introduction of this new



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source of energy becomes a vital necessity to enable us to maintain our industrial pre-eminence among the nations of the world.

Brownell is confident that the development of a great new industry in the spirit of full and free competition can be accomplished.

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### Life Insurance Policyholders Aid Utility Financing

**L**IFE insurance policyholders, through their policy funds, have met more than half of the long-term financing needs of the nation's public utilities, the Institute of Life Insurance reports.

At the start of last year, of the \$13,-968,000,000 public utility bonds held by the U. S. life companies, \$13,537,000,000 were bonds of U. S. corporations. This represents an investment of \$130 per policyholder. The total funded debt of these utilities was just under \$25 billion.

Analyzing these bond holdings of the life companies as of January 1, 1956, by type of operation, the institute found that \$7,415,000,000 represented funded debt of electric light and power companies in the United States. These holdings covered power plants from coast to coast.

Gas utilities and natural gas pipelines in the United States accounted for \$3,-160,000,000 of the life company utility bond holdings. The pipeline bonds totaled \$1,276,000,000. The life company holdings of U. S. telephone and telegraph company bonds at the start of last year were \$2,434,000,000. The balance of the U. S. utility bonds, totaling \$528 million, included private water company, local transit, and miscellaneous utility bonds.

In all cases, the holdings of multiple-line utilities are classified by the type of service which constitutes their principal source of revenue. In addition to the bonds of U. S. corporations, the life companies at the start of last year held \$431 million of foreign public utility bonds, chiefly Canadian light, power, and communications issues.

The public utility holdings of the U. S. life insurance companies have increased materially in recent years, as facilities to power the expansion of the economy have grown. Total public utility bond holdings of the life companies at the start of last year were \$8,756,000,000 greater than ten years earlier.

**I**N the early 1920's, only 2 per cent of the life company assets were invested in public utility bonds. By 1935, 9 per cent of their assets were so invested and at the start of last year nearly 16 per cent. Public utility bonds have become one of the important investment portfolios with the life insurance companies, now accounting for more than one-third of the securities of business and industry held by them.

The spread of long-term financing out across the country is clearly shown in the public utility portfolio. A recent analysis of the holdings of a representative group of life companies showed that the investment in public utility bonds of southern and western utilities has grown more rapidly than eastern utilities, in the company portfolios. In the past ten years, the bonds of utilities in the Southwest have more than quadrupled in the life insurance portfolios; in the Mountain states they have nearly quadrupled; in the East South Central states and Pacific coast states they have more than tripled; and in the other regions, excepting only Middle Atlantic, they have more than doubled. In the Middle Atlantic states, the increase has been just under 100 per cent.



## The March of Events

### Atomic Power Plant Planned

**P**LANs for the construction of a full-scale atomic power plant of advanced design were announced on February 8th by Allen S. King, president of Northern States Power Company, one of a group of participating midwest electric utility companies.

Plans contemplate a 60,000-kilowatt plant estimated to cost from \$20 to \$25 million and to be completed by 1962.

Subject to the approval of the Atomic Energy Commission, the plant would be located on a site yet to be chosen on the system of Northern States Power Company, which company would own and operate the plant. This system was chosen because of its size and the extent of its transmission system and the company's ability to meet any production delays or difficulties that may occur during preliminary tests and experimental operation. Major interconnections between companies will permit energy produced by the atomic power plant to flow into the systems of the participating companies.

King also said that his company and other utility companies located in Iowa, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin are forming a corporation for the purpose of jointly financing the research and development work associated with the construc-

tion of the plant. Negotiations are under way with Allis-Chalmers Manufacturing Company of Milwaukee, Wisconsin, and Pioneer Service & Engineering Company of Chicago, Illinois, as prime contractor and architect-engineers, respectively.

The participating companies, which will share in the substantial additional costs involved in construction and initial operation of the plant, are: Northern States Power Company, Minneapolis; Mississippi Valley Public Service Company, Winona, and Otter Tail Power Company, Fergus Falls, Minnesota; Interstate Power Company, Dubuque, Iowa Power & Light Company, Des Moines, Iowa Southern Utilities Company, Centerville, Iowa; Wisconsin Public Service Corporation, Milwaukee, Wisconsin; Northwestern Public Service Company, Huron, South Dakota; St. Joseph Light & Power Company, St. Joseph, Missouri; and Central Electric & Gas Company, Lincoln, Nebraska.

### "A" Risks Now Insurable

**L**IABILITY insurance protecting the public against radiation hazards and accidents, resulting from nuclear power reactors, has recently been made available from commercial sources.

This new nuclear energy liability insurance, with limits up to \$50 million per

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reactor including reinsurance in foreign markets, has been made possible by the approval of a majority of state insurance departments of a rule under which risks involving radiation hazards may be rated.

Actual costs of the insurance will be governed by the characteristics peculiar to each atomic risk. What the new rating

rule does is to provide underwriters with the machinery to make the premium rates. It does not insure general liability hazards covered by existing forms of insurance.

The new coverage will be offered reactors through the Nuclear Energy Liability Insurance Association, comprising 134 capital stock casualty companies.

## Arkansas

### House Passes Co-op Legislation

A BILL to permit rural electric co-operatives to keep all the territory they are now serving was passed by the state house of representatives recently and sent to the state senate.

Under the bill, listed as HB 96, a rural electric co-operative would be permitted to keep the territory now assigned to it for service, even though some of the territory is annexed to a city in which a private utility has a franchise.

## California

### Gas Rate Rise Protested

PROTESTS were filed recently by 1,811 residents of the Los Angeles area against proposed rate increases which would add \$6,453,000 a year to revenues of the Southern Counties Gas Company. The opposition came with the filing of petitions bearing the 1,811 names with the state public utilities commission as it prepared to receive testimony in support of the boost.

Commissioner Rex Hardy set March 14th for hearing of citizen protests on the raise. He also announced that on March 13th state experts will release results of their own studies.

President Guy W. Wadsworth, Jr., of the gas company said the rate hike, if granted, would bring an average increase of 60 cents a month on bills of "typical residential customers." He declared that additional revenues are needed if dependable service is to be maintained.

The utility concern serves nearly 600,000 consumers in San Luis Obispo,

Orange, Santa Barbara, and Ventura counties and in portions of Los Angeles and San Bernardino counties.

### Fluoridation of Water Ordered

THE state public utilities commission last month ordered California Water Service Company to begin fluoridation of the water supplied to customers in Oroville and vicinity. The decision was believed to be the first ever issued by a state regulatory body directing a privately owned company to fluoridate its water supply.

No date was set for the start of fluoridation, but the company was ordered to report in writing to the commission within sixty days after the effective date of the order on the action taken.

The commission's decision said a review of the record revealed that the injection of fluorides "will promote the health of the customers of defendant and will not cause injury to the consumers of such water."

## Idaho

### Municipal Gas Systems Sought

**A** BILL to permit municipalities to build, operate, and own their own gas distribution facilities was introduced in the state legislature late last month. Towns and cities would be empowered by the measure to issue bonds for such purposes. The bill would add a section to the Idaho code governing issuance of municipal bonds to make the code specifically include

natural gas systems, it was reported.

The bill was sponsored by Representatives Perry Swisher, Bannock Republican, and T. F. Terrell, Bannock Democrat. Swisher was a leader in a movement to enable municipalities to obtain natural gas facilities through co-operative venture. The co-operative form, however, was recently declared unconstitutional by the state supreme court.

## Maryland

### Rate Changes Proposed

**P**ROPOSED changes in electric and gas rates which would probably mean lower consumer bills were filed recently by the Baltimore Gas & Electric Company with the state public service commission. The changes would apply present Baltimore city rates throughout the company's territory and permit adjustments according to changing gas prices.

Charles P. Crane, president and chairman of the board, said the immediate effect of the several proposed changes would be a reduction in the company's total operating revenues of \$732,000 a year, based on 1956 conditions. He said the company proposed to make the changes, if approved, effective in thirty days.

One of the changes would eliminate higher rates of gas and electric service in the so-called "outside rate district," or the areas outside the city's 1918 boundaries, by establishing the city rates uniformly through the territory.

### Union Upholds Rights

**T**HE Baltimore Transit Company Workers Union moved early this month to protect its rights to bargain collectively with the utility should the city

take it over. There is a bill before the state legislature which would authorize creation of a Baltimore transit authority. Mayor D'Alesandro has proposed the setting up of such a municipal agency to operate the public transportation system if private interests do not buy out the out-of-state controlled transit company.

Frank P. Baummer, president of the transit union, writing for the AFL group's executive committee, said in letters to each Baltimore member of the legislature that the employees of the company are "vitally concerned with the type of legislation which is adopted. We would like to make it plain that we are not taking any position which should be construed as advocating public ownership of the transit system. In the event, however, that the legislature decided that public ownership is advisable, we are most concerned with having such legislation protect certain basic and vital rights of our members.

"It is essential," the union president continued, "that such legislation give the authority . . . therein established the right to deal with and enter into written agreements covering wages, hours, and working conditions, with employees of the authority through representatives of any

## THE MARCH OF EVENTS

labor organization authorized to act for the employees.

"It is essential that any such authority be bound by agreements and contracts in existence at the time . . .

"Finally, it is most necessary that the thousands of retired employees of the Baltimore Transit Company be given assurance that their pensions be assumed and guaranteed by the authority."

## Missouri

### Utility Unions Urge Repeal of Antistrike Law

**R**EPPEAL of the King-Thompson utility no-strike law was urged recently by a group of unions representing utility workers through the state.

Joseph Appelbaum, chairman of the Missouri Utility Workers Legislative Conference, said the unions would sponsor a repeal measure in the state legislature "soon." He did not say who would introduce the measure.

A statement issued by the conference said "The King-Thompson law is a bad law. It is unfair and, we believe, unconsti-

tutional." A test suit is now pending in the United States district court challenging constitutionality of the 10-year-old no-strike law.

The utility union group charged that under the Missouri law utilities do not have to bargain in good faith with their workers.

Utilities count on the state to step in and force acceptance of the employer's proposals and counterproposals with the result that "utility corporations shirk their honest obligations to bargain in good faith with the unions representing their workers," the statement said.

## Nebraska

### City Given Power Payment

**T**HE Platte Valley Public Power and Irrigation District, owner of McCook's electric distribution system, has turned over \$2,000 to the city as its first monthly instalment payment on earnings produced by the system.

The city and power district agreed that following January 1st all excess funds over costs would be returned to the city.

It has been estimated that McCook will receive about \$25,000 under the contract in 1957, approximately 5 per cent of the gross sales.

## New York

### City to Sell Utility System

**C**ITY officials of Dunkirk and representatives of the Niagara Mohawk Power Corporation were reported recently to be at work on the technicalities of transferring the city-owned electric system to the power company.

In a referendum on February 11th voters approved by a vote of 3,129 to 2,376 sale of their company for not less than \$800,000. The move was turned down in

1951, the first time the proposition was put to the voters.

Both Mayor George T. Wheeler and Charles J. Wick, administrative vice president of Niagara Mohawk, expressed pleasure at the outcome. Dunkirk has purchased power from Niagara Mohawk for many years for distribution through its own system.

Involved in the purchase are utility poles, lines, and other equipment. No buildings were involved.



## Rhode Island

### Bills Aimed at Utilities

**T**wo measures aimed at public utilities in the state were introduced in the state house of representatives this month.

Representatives John F. Doris (Democrat, Woonsocket) and Eugene F. Cochran (Democrat, Providence) asked the house to create a special investigating committee to attempt to determine whether the present basis for the utility rate structure "is in the public interest." The two representatives said their resolution is aimed at the present practice under which capital expenditures by utilities are used to justify rate increase requests.

Their resolution asks whether "it is in the public interest (for the state) to control or review such major capital expenditures." Cochran said there is "no evidence now that these construction programs have been conducted economically."

Both the New England Telephone & Telegraph Company and the Narragansett Electric Company now have rate hike petitions pending before the state public utilities administrator.

The Doris-Cochran resolution, which went to the judiciary committee, would have the committee of three Democrats and two Republicans named by the speaker. The commission would report to the house by February 15th of next year.

Representatives Robert L. Gammell (Republican, Coventry) and Ulysses LaRoche (Democrat, West Warwick) offered a resolution that would have the effect of changing the practice under which utilities charge motorists for poles damaged by cars. The bill would provide that the utilities could make the charges only if it were shown that the damage was willful.

## Washington

### Power Act Ruled Constitutional

**T**HE state supreme court on February 1st ruled constitutional the state power act, creating the state power commission and permitting public utility districts to organize operating agencies for production and sale of electrical energy.

Written by Judge Richard B. Ott, the court's unanimous opinion denied an appeal by R. L. Keeting, who brought an action in Clallam county superior court to test the law. The high court affirmed a judgment entered by Clallam Superior Court Judge Max Church.

### City Loses Dam Issue

**T**HE state supreme court on February 7th ruled against the city of Tacoma in the controversial Cowlitz dam case. In a 5-to-3 decision, the high court held that the city has no legal authority to condemn

a fish hatchery and other state-owned property, part of which would be flooded by the city's \$138 million project.

Work on the first of two proposed dams on the Cowlitz river already has started. It was reported that the city already has invested approximately \$4 million in the Mayfield dam project. A second dam was planned at Mossyrock.

The high court decision was written by Judge Frank P. Weaver and concurred in by Judges Hill, Schwellenbach, Rosellini, and Ott. They ruled that legislation would be required to permit the city to condemn the state-owned property that would be flooded.

A spokesman for Tacoma City Light said a bill to give the city the right to condemn state property already had been drafted for introduction before the senate, in the event of an adverse decision.



# Progress of Regulation

## *Trends and Topics*

### Expenditures for Sales Promotion and Advertising

**S**ALES promotion generally redounds to the advantage of the ratepayer as well as the stockholder. As a plant approaches capacity operation, the spreading of fixed costs, along with those variable costs which do not increase in direct proportion to output, reduces unit costs and makes rate reductions possible. Expenditures for sales promotion are therefore recognized as a proper expense for rate making. Related expenditures for advertising designed to inform the public about utility services, looking to the smooth and efficient functioning of the business, are also allowable. All such expenditures, however, must be reasonable and prudent.

#### *Advertising by Competitors*

An electric company and a gas company located in the same area may be sharp competitors. Sales gains of one may be losses for the other. Should a customer be required to sustain the electric company's expense devoted to taking his business away from the gas company? And should he also have to pay the expense of the gas company incurred to retain his business against the efforts of the competitor? The Illinois commission said such expense must be borne by the stockholders. At the same time the commission largely rejected as new business expense the losses incurred by a gas company in selling gas-using appliances. Apparently, many sales were merely replacements of appliances already in use by customers and did not serve to promote the sale of gas (19 PUR NS 177). The commission's reduction of sales promotion expense was affirmed by the state supreme court (31 PUR NS 193).

#### *Expense Percentage Comparisons*

A few years ago the Utah commission described the sales promotion expense of an electric company as "exceedingly generous" and indicated that it should be reduced. This expense was 2.63 per cent of the company's operating revenues, while the same item for 32 other comparable companies amounted to only 1.83 per cent. Some of the expense, incidentally, was directed against

## PUBLIC UTILITIES FORTNIGHTLY

public power movements, the justification being to protect investors, with a resultant advantageous effect upon cost of capital. Although no specific disallowance was made (since the evidence was such as to admit of only an arbitrary reduction), the commission cautioned that no expenditures should be allowed for rate-making purposes unless they are reasonably necessary to serve the customers and keep the company in contact with the consuming public as an alert, energetic, and forward-looking business (95 PUR NS 390).

The Arkansas commission, in a recent proceeding, substantially reduced an electric company's sales promotion expense after comparing it with the same expense item of a large number of electric companies. The comparison was made on the basis of the relationship of sales promotion expense to other expenses. A comparison with only 13 electric companies, as proposed by the company, was considered inadequate (13 PUR3d 1).

### *Expense Measured against Results*

In determining the reasonableness of expenditures for sales promotion, the commissions may give appreciable weight to evidence of results obtained. The Pennsylvania commission ruled, last year, that an electric company's sales promotion expense was not imprudent or extravagant where it had presumably contributed to an increase in number of customers, as well as consumption per customer, and had remained constant over a period of years (14 PUR3d 438).

Some decisions of the depression years looked sharply to the interests of the ratepayers. During this period, the Ohio commission reduced by half the new business expense claimed by a natural gas company. The evidence indicated that the expenditures had produced no appreciable expansion of business (PUR1933B 433). The Massachusetts commission expressed the view that when income derived from new business is small by comparison with the amounts spent to obtain it, the stockholder should be required to share in the expense since the object of sales promotion is, in the first instance, to benefit him (30 PUR NS 260).

In 1936 the Pennsylvania commission limited a gas company's allowance for new business expense devoted to the marketing of natural gas in place of manufactured gas. It held that present consumers should not be burdened with the high cost of obtaining new business extending far into the future (16 PUR NS 65).

A rather extreme position was taken in a 1933 opinion by the Oklahoma commission. Upon cutting down a claim for advertising expense, the commission went on to say that such expense is not a proper charge to be passed on to the consumer when the utility operates without competition and supplies a service for which there is no substitute. Even new-business expense should not be charged to operating expense since the income from the business amply offsets such a cost. "It is not the policy of the law to permit the utility to charge the consumer with the cost of advertising . . . to secure new trade," the commission said (PUR1933C 1).

Quite recently the California commission approved the advertising expense

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of a telephone company in the face of contentions that much of the company's advertising program was unnecessary, particularly considering that service could be obtained only from this company in its service areas. The advertising enabled the company to obtain sufficient employees to avoid overtime pay and resulted in increased revenues, better service, and more economical handling of public inquiries. The expenditure amounted to three-fourths of one per cent of revenues. The commission thought this was not excessive in view of the results achieved (5 PUR3d 396).

The California commission recognized the benefit which accrues to the public from transit traffic promotion. In approving substantial expenditures for this purpose, the commission observed that continual rate advances do not solve the transit revenue requirements, but that loss of patronage must be stemmed and new traffic attracted (7 PUR3d 80; 96 PUR NS 105).

### *Institutional Advertising*

A number of decisions have disapproved institutional advertising as an operating charge. While the Connecticut commission observed that it had no jurisdiction over the actual expenditures, it declared that if a company wished to incur institutional advertising costs, it must do so at the expense of its owners "to whose advantages such efforts, if successful, will immediately inure" (2 PUR3d 379).

The New York commission excluded the cost of a radio mystery program from a gas and electric company's operating expenses. It also denied the cost of an employees' news publication, though it recognized the cost as essentially an advertising expense. Since the commission had already allowed what it regarded as a substantial amount for advertising, it thought the consumers should not be burdened with "such additional, unnecessary, or special expenses" (33 PUR NS 393). Radio programs and other advertising, said the Maine commission, when used solely to promote general good will, should be charged to the stockholders rather than the ratepayers (75 PUR NS 275). Likewise, the Massachusetts commission has voiced disapproval of expenses for institutional advertising (83 PUR NS 238).

Payments to civic bodies have been treated as sales measures (66 PUR NS 14; 27 PUR NS 69). The cost of an exhibit at a fair was regarded as a proper new-business expense in one case (19 PUR NS 314) though disallowed in another as a nonrecurring item (40 PUR NS 146). "Birthday" celebration expense was considered unnecessary (97 PUR NS 350).

### *Advertising and Ability to Serve*

What about sales promotion and advertising expense when the company is unable to serve additional customers? The commissions generally disapprove or limit such expense. Thus, the Wisconsin commission substantially reduced a gas company's expense where the need for promotion was considerably diminished because of a limited gas supply (92 PUR NS 133). Similarly, the Maine commission has said that advertising expense should be limited when the company is unable to meet demand for service (80 PUR NS 397;

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75 PUR NS 275). The New York commission has ruled in accord (49 PUR NS 257).

But the Georgia supreme court in effect reversed the state commission, which had sharply cut a telephone company's advertising expense on the ground that the company already had more applications for service than it could fill. The court noted that the advertising related to the use of party lines, directories, and conversion to dial operation. Advertising expense for these purposes, the court held, was proper and allowable for rate making (75 PUR NS 471).

### *Advertising for Rate Increase*

Numerous decisions express disapproval of the use of subscribers' funds to advertise for a rate increase (4 PUR3d 195; 80 PUR NS 397; 77 PUR NS 33). The Arkansas supreme court, approving the commission's criticism of such expense, observed that the criticism was no doubt directed to the proposition that a quasi-judicial board had been created by the state to act for the public and for the utilities, and that the board's determinations should not be influenced by appeals to other sources. "Receipts must not be dissipated in an effort to get further increases from the public," the court declared (94 PUR NS 214).

The cost incurred by a telephone company in communicating with many public officials and influential citizens during the pendency of a rate case, in order to explain the company's position in seeking a rate increase, was not a proper operating charge for rate-making purposes, the Tennessee commission said (84 PUR NS 65). (The expense was apparently not excluded, however, because it could not be differentiated from other expenses.) But the Ohio commission indicated that advertising expenses incurred in presenting a company's case in the newspapers while rates were being negotiated with city authorities should be included in cost of service (75 PUR NS 97).

### *Managerial Latitude Recognized*

Management is generally allowed considerable latitude in determining a reasonable amount to spend for sales promotion and advertising. Mere claims that expenditures are unreasonably large or that they should be disallowed on legal grounds, without proof of extravagance, have been rejected (99 PUR NS 361; 82 PUR NS 341; 32 PUR NS 321).

"Within the limits of reason," said the United States Supreme Court, "advertising or development expenses to foster normal growth are legitimate charges upon income for rate purposes as for others." The court was considering a commission's partial disallowance of expense incurred to obtain new business. The commission had not questioned the fact of actual payment but, without evidentiary basis, had acted on the ground that anything more than the amount it allowed would be unnecessary and wasteful. The court declared that the judgment of management as to the measure of a prudent outlay should not be overturned in the absence of a showing of inefficiency or improvidence (6 PUR NS 449).



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### *Review of Current Cases*

#### Measurement of Depreciation in Current Dollars Recognized in Telephone Rate Proceeding

THE Indiana commission, in authorizing an increase in telephone rates, authorized the company to accrue depreciation upon the basis of the cost of its property, repriced in current dollars. It required the filing of an annual report showing depreciation expense accrued on the basis of original cost and on the basis of cost repriced in current dollars.

This action followed the receipt of testimony concerning the impact of the change in the value of the dollar. A witness said it was impossible to contradict the fact that one 1956 dollar received from a customer was not the equivalent of, and did not represent the recovery of, one 1940 dollar of plant consumed. He said that although cost of plant consumed stated in converted dollars is not recognized by the Internal Revenue Service for tax purposes, the last-in-first-out inventory procedure, which is approved for tax computations, has the effect of recognizing present-day costs of materials, and the recent tax development in connection with the sale of a residence also constitutes recognition of the impact of inflation.

Another witness pointed out that during the last twenty-five years the three

outstanding features of the American economy have been phenomenal growth, major inflation, and the business cycle. These factors had been present in the territory served by the company. He said that the 1956 price level was 50 per cent above the 1945 level and that the 1956 price level was 12 per cent above the 1950 level. He said further that the general price level which had resulted from the major inflation since 1940 would remain.

The commission, after receiving this evidence, pointed out that depreciation is as much a cost of doing business as wages and salaries and other obvious operating expenses. Depreciation is the cost of plant or property consumed from day to day in the production of services sold by a utility.

The commission then concluded that depreciation, or the cost of plant consumed, measured in current dollars, and related to other factors as was done in the evidence presented, tended to reflect a realistic picture of profits in which there was no understatement of cost or overstatement of profits. *Re Indiana Teleph. Corp. Cause Nos. 26794, 26822, January 11, 1957.*



#### Six Per Cent Rate of Return Allowed on Telephone Company's Reproduction Cost Rate Base

NEW rates authorized by the Ohio commission for the Mansfield Telephone Company will produce a rate of return of 6 per cent on a reproduction cost new less depreciation rate base. This return will afford earnings of 14.7 per cent on actual common stock equity.

##### *Cost of Capital*

In determining cost of capital the commission allowed actual debt cost of 3.7 per cent. It fixed 7.5 per cent as the cost of equity capital, allowing .2 per cent over equity capital cost as measured by earnings-price ratios of comparable companies.

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Since the rate base was measured by construction prices as of the end of 1954, the commission used earnings-price ratios as of the same time. It rejected a proposal to use ratios averaged back to 1950, which would increase the cost of equity capital substantially. The company's debt and equity ratios of 44 per cent and 56 per cent, respectively, stated as a percentage of the rate base, were found to be reasonable for the purpose of determining the rate of return.

The over-all cost of capital was found to be 5.85 per cent. Six per cent, described as the upper limit of the band of fair rate of return, took account of the upward trend in money rates and unusual delays in processing this case.

### *Overhead Allowances*

Overheads accounted for more than 70 per cent of the difference between the company's and the commission staff's estimates of reproduction cost new. The company applied overheads as an across-the-board percentage, amounting to 37.52 per cent, while the staff adopted various rates for overheads depending on the type of property. The staff applied allowances for interest and taxes for individual property on the basis of the time considered to be consumed in construction. Its over-all allowance for overheads was 25.03 per cent.

The company's small exchanges, for instance, were found to incur smaller actual overhead costs for interest and taxes during construction than a large exchange; and for such property as motor vehicles and office furniture, only six months were allowed as against a 2-year construction period for the whole plant.

### *Depreciation Adjustment*

The staff arrived at an accrued depre-

ciation figure of more than three times that determined by the company. The company recognized depreciation for wear and tear only. In addition to wear and tear, the staff allowed for the functional factors of inadequacy, lack of utility, and obsolescence. Since a substantial number of the company's telephones were of the old wood wall and desk types, the commission found that some depreciation for other factors than wear and tear would be necessary.

It was noted that the telephone company's depreciation reserve was over twice the depreciation suggested by the company in its appraisal.

The company contended that the staff was in error because its finding as to the per cent condition in this case could not be reconciled with the commission's finding in a prior valuation, considering substantial investments made by the company since the prior valuation. The commission observed that it was required to determine the depreciation in the property as of the date certain in the instant case and was not bound to reconcile its present findings with findings made as to other property at a prior date.

The commission found that the evidence in this case generally supported the staff's findings.

### *Dissenting Opinion*

Commissioner Winter sharply dissented. He disapproved of the capital cost determination and declared that no accurate determination of overhead costs or existing depreciation could be made on the evidence. He also disagreed with the majority opinion on some valuation considerations. *Re Mansfield Teleph. Co. No. 25,304, December 28, 1956.*



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### Extensions by Electric Company into Contiguous Areas Ruled Lawful on Co-operative's Appeal

THE North Dakota supreme court, upholding a lower court and the state commission, decided that an electric company's service extensions, complained of by an electric co-operative, were lawful though the company did not first obtain specific certificate authority. The court also sustained the commission's ruling that it had no jurisdiction to construe and enforce a contract alleged to subsist between the parties and specifying the areas that each should serve in the growing community of Williston, North Dakota.

#### *Contiguous Territory*

Under the applicable state statute, a public utility is not required to obtain a certificate if the extension is into territory (1) which is contiguous to that already occupied by it and (2) which is not receiving similar service from an electric company or co-operative, or (3) if no certificate has been issued to any other utility.

The intent of the statute, said the court, was to avoid "leapfrogging" electric operations across areas which were receiving similar service, or in which similar service by another utility has been authorized. The purpose was to eliminate economic waste, without deterring the extension of service. "Contiguous territory," the court indicated, means an area joined together by a common boundary on all or part of one or more sides, common with territory in which the utility is authorized to serve. "Not receiving similar service" refers to

service in fact as distinguished from the ability to give service. It was not the intent of the legislature to extend the statute to territory in which a company or co-operative merely had the ability or desire to deliver electric service.

All of the extensions complained of were found by the commission to be within the statute. The court held that the evidence supported the commission's determination.

#### *Jurisdiction over Contracts*

Interpretation and enforcement of contracts, the court pointed out, is not an administrative function but a judicial one cognizable by a court in the first instance. Incidentally, however, since the court's jurisdiction in this case was appellate, derived from the review power over the administrative decision, it was limited, with respect to the contract, to the administrative jurisdictional question.

The contract was never approved by the commission. The fact that some members of the commission participated in the negotiations preceding the actual agreement was immaterial on the issue of the commission's jurisdiction.

On several procedural grounds the co-operative contended that it had been denied a fair hearing. The court ruled against the co-operative, holding that a fair hearing had in fact been given. A petition for rehearing was denied. *Williams Electric Co-op., Inc. v. Montana-Dakota Utilities Co.* 79 NW2d 508.



### Contract Gas Rate Changes Suspended by FPC

THE Federal Power Commission has denied rehearings of suspension orders relating to contract gas rate changes

proposed by Sun Oil Company. The company urged that the suspensions were unlawful on these grounds:

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(1) that each contract filed with the commission is an indivisible entity and, as part of an initial rate schedule, the periodic or favored nations rate increases sought to be collected are not subject to suspension;

(2) that the orders did not adequately state reasons for the suspensions within the meaning of § 4(e) of the Natural Gas Act; and

(3) that the orders were issued more than thirty days after the company had filed the notices of change.

Section 4(d) of the act prescribes a minimum of thirty days' notice of a proposed change in a filed rate. But this provision is separate and distinct from the authority to suspend a proposed change under § 4(e).

The fact that the company's contracts provided for specific, periodic price increases or price increases resulting from operation of favored nations clauses, said the commission, does not oust the commission from jurisdiction under §§ 4(d) and 4(e). Acceptance of contracts for filing merely indicates that the requirements of the commission's regulations have been satisfied, but does not constitute approval of any of the terms of the contracts.

A periodic or favored nations price increase is not a part of an initial rate but a change which may be suspended. No other rule, the commission pointed out, would preserve its statutory duty to determine whether changes in existing rates

are unjust or unreasonable. The commission's regulatory power is not controlled by contract provisions. Nor does it follow, said the commission, that because a company may not unilaterally change its rates by filing a change under § 4(d), the commission is without jurisdiction under § 4(e) as to bilateral changes.

### *Sufficiency of Findings*

Section 4(e) requires a statement in writing of the reasons for a suspension. The orders complained of found that "the increased rates and charges proposed in the aforesaid filings have not been shown to be justified, and may be unjust, unreasonable, unduly discriminatory, or preferential, or otherwise unlawful." The commission thought the objection was without merit.

### *Time Limit for Suspension*

No time limitation with respect to suspensions is imposed by either § 4(d) or § 4(e). When a notice of change in rates is filed more than thirty days before the effective date designated by the company, the Natural Gas Act permits suspension at any time prior to such effective date. Use of the proposed effective date as the terminal date of the suspension authority, said the commission, is reasonable and effects a balancing of the interests of all concerned. *Re Sun Oil Co. Docket Nos. G-11287, G-11288, G-11354, December 21, 1956.*



## Delegation of Minimum Rate-fixing Authority Upheld

THE Ohio supreme court affirmed a commission order approving a gas company's application for changes in a rate schedule which contained a minimum industrial charge. The commission was found to have exercised its authority to

fix gas rates in accordance with statutory standards for guidance, and the legislature, by conferring such authority, had not exceeded constitutional limitations. The legislature, said the court, could exercise, or delegate with standards for guid-

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ance, authority to approve rates with minimum charges.

### *FPC Jurisdiction Exclusive*

Protesting parties had claimed that the interstate distributor was charging the company an excessive amount for gas sold.

The commission had countered that it did not have jurisdictional authority to determine whether the amount was excessive, since the distributor was charging the rates fixed by the Federal Power Com-

mission. The court agreed that the price charged was subject to regulation exclusively by the FPC. *Citizens Gas Users Asso. et al. v. Ohio Pub. Utilities Commission et al.* 138 NE2d 383.

In another case, the court held that the commission had exercised sound discretion when it determined that natural gas rates for industrial consumers were inadequate and subsequently approved new rate schedules. *Industrial Protestants v. Ohio Pub. Utilities Commission*, 138 NE2d 398.



## Atomic Research Company Not an Electric Utility Under Holding Company Act

THE Securities and Exchange Commission held that Power Reactor Development Company, a nonprofit corporation proposing to construct an atomic reactor to produce plutonium and steam, was not an electric company within the meaning of § 2(a)(3) of the Holding Company Act. The company was organized for the purpose of advancing the art and technology of producing power by the use of fissionable materials. It is constructing a "fast neutron breeder" atomic reactor. It will produce plutonium to be delivered to the United States Atomic Energy Commission and steam which will be delivered to the Detroit Edison Company for the generation of electricity.

The company initiated the project pursuant to the Power Demonstration Reactor Program provided for by the Atomic Energy Act of 1954. The reactor is to be operated for a 10-year experimental period during which research will be continued with respect to the technological and economic problems of operation. The company has no capital stock outstanding and its articles of incorporation contain no provision for the authorization or issu-

ance of any capital stock. Necessary funds are obtained from contributions by various public utility and industrial corporations and from loans by a number of pension trusts.

### *Revenues from Steam Sales*

It is expected that substantial revenues will be received from sales of plutonium and steam. The steam is to be sold at rates which, in effect, will equal the estimated cost of producing an equivalent amount of steam through efficient conventional facilities. The company expects that the proceeds from the sale of plutonium to the Atomic Energy Commission will substantially exceed the proceeds from the sale of steam.

Total revenues are expected to be more than adequate to pay interest and to meet the principal payments on the company's loans. Any additional income, however, is to be devoted to the company's research program. The company is to be operated on a nonprofit basis, and no payments will be made to any member, private individual, or corporation. Present members of the corporation consist of 21 public util-



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ity, industrial, and other corporations, each of which will be represented on the company's board of trustees. *Re Power*

*Reactor Development Co. File No. 31-638, Release No. 13364, January 17, 1957.*



### Ordinance Invading Commission Jurisdiction Invalid

A CALIFORNIA superior court declared unconstitutional a Los Angeles county ordinance which prescribed licensing of all persons operating tank trucks in the county. It was provided that a license may be denied if the county supervisors determined that the business was "detrimental to the public interest," or if in their judgment the operator was "unfit to be trusted with the privilege" of engaging in the business. A tank-truck operator holding a certificate from the state commission was convicted, under the ordinance, of failing to procure a license.

Under the state Constitution and stat-

utes, common carriers operating tank vehicles in California, except those serving entirely within a city, are under the exclusive jurisdiction of the state commission. The county of Los Angeles therefore had no authority to license carriers whose use of its streets was merely incidental to the carrying on of a nonlocal business. The court pointed out that if an operator could be denied a license on the grounds specified in the ordinance, then the exclusive jurisdiction of the state commission would be effectively nullified. The conviction was reversed. *People of the State of California v. Cote*, 304 P2d 278.



### Negotiated Underwriting Instead of Competitive Bidding For Debentures Permitted by Commission

THE New York commission authorized Niagara Mohawk Power Corporation to issue \$46,224,200 principal amount of convertible debentures and to issue a sufficient number of shares of common capital stock without par value in satisfaction of the conversion privilege. The decision centered upon the type of security to be issued and the manner of issuance.

It was said to be evident that there was a basis for issuance of securities in the principal amount proposed and need for proceeds of that amount for new construction, discharge of outstanding loans, and, in effect, renewal of the short-term credit position of the company to permit of further borrowings to finance necessary plant construction in the future.

#### *Type of Financing*

As to the type and method of financing, said the commission, capital funds are one of the costs of doing business and it is the duty and obligation of a utility company to secure capital funds at as low a cost as is possible commensurate with the maintenance of a satisfactory credit and financial position, just as it is the obligation of a utility company to render service at as low a cost as possible commensurate with the necessity of assuring proper and adequate and continuing service.

There can be differences of opinion as to the most advantageous terms available. Ordinarily, the commission does not interfere with the discretion of management in that regard if the utility reasonably shows

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a substantial basis for selection of various possible forms of financing since naturally the burden of selection is the prime responsibility of management.

This company had chosen and proposed to issue, debentures having a term of fifteen years and convertible into shares of common stock. The debentures would be offered to common stockholders on a pro rata basis. Stockholders would each have the opportunity of deciding whether to utilize their rights to purchase debentures or dispose of rights. The record, the commission concluded, showed a reasonable basis for the issuance of this type of security in the principal amount authorized.

### *Competitive Bidding versus Negotiated Underwriting*

If all the debentures were taken up by common stockholders there would be no need for underwriting. The company could not be assured of this and it proposed to enter into an agreement whereby an underwriting group would undertake to dispose of all unsubscribed debentures. One of the terms proposed was that such underwriters use their best endeavors to dispose of unsubscribed debentures at a price above the subscription price and share with the company any excess of selling price above subscription price plus related costs. This would have the twofold advantage of reducing the cost of issuance and of tending to create a market for the debentures for such of its stockholders or others as might care to buy or sell such securities in the open market. The program, said the commission, was not unusual and there was nothing in the program to that point that warranted withholding of approval by the commission.

Contentions had been advanced, however, in favor of competitive bidding instead of negotiated underwriting. Essen-

tially, said the commission, the question comes down to a matter of weighing possible intangible benefits of negotiated underwriting with an apparent real monetary saving for competitive bidding. None of the terms other than subscription price had been fixed and the interest rate, redemption prices to a degree, conversion price, and compensation were not yet definite. The selection of interest rate and conversion price would have a bearing upon the marketability of the securities. Therefore, presumably they would have a bearing upon the compensation.

It was said to be evident from the record that the company was concerned, and rightly so, with the reception of this particular financing, its first experience with convertible debentures involving preemptive rights on the part of common stockholders. One of several reasons for this was the effect that a recent disaster at the Schoellkopf plant at Niagara Falls might have upon the status of the company's securities in the open market. Another was the fact that it would be faced with the necessity of arranging satisfactory financing for a long period in the future for plant expansion to meet increasing demands for service. Another factor was the fixing of the conversion price at a value above the present market, stemming from the belief of management that the market value of its stock was then depressed.

Because of these and other factors, said the commission, it was quite possible that the amount of compensation was of less moment than the establishment of a basis for future security issues of the company at a time when conditions for its securities were rather critical and market conditions generally were unstable. The management evidently felt more assured of the success of this particular security issue if done through negotiated underwriting,

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where it could have more direct control, than if left to the more mechanical process of competitive bidding.

Opinion and judgment, said the commission, must necessarily be brought into play in deciding upon what additional compensation would be warranted in order to obtain what management felt was a greater assurance of the proper marketing of this particular security issue. From the facts of record it appeared to the commission that the upper limit, of 80 cents per \$100 principal amount, was excessive and that the underwriting should be accomplished at a lesser cost.

However, as of the present time none

of the terms of the proposed securities were fixed and definite and these terms would not only depend upon market conditions just prior to final execution of the underwriting agreement, but also would have a direct and definite bearing upon the compensation that would be appropriate. It was the decision, therefore, that the company should be allowed to proceed with the negotiated underwriting but the authority granted necessarily would have to be subject to abrogation if this action appeared warranted upon examination by the commission of the final papers. *Re Niagara Mohawk Power Corp. Case 18134, January 7, 1957.*



### FPC Reaffirms Cost-of-service Basis for Power Rates

THE Federal Power Commission denied a rehearing of a recent order (15 PUR3d 289) directing South Carolina Generating Company to reduce its rates for the sale of electric energy to Georgia Power Company. Against the argument of the generating company, the commission reaffirmed its original finding that the public interest would not permit the use of a value-of-service formula as a basis for the rates.

The commission adhered to its cost-of-service approach.

The generating company asked the commission to give effect to increases in cost of service alleged to have occurred after the 1956 test year. The commission refused to reopen the case, noting that

the company's declining rate base would more than offset any cost-of-service increases. It was observed, moreover, that orderly procedure demanded an end to the proceeding.

The South Carolina commission claimed that the federal commission's order superseded an effective area of the former's regulation. The rates in this case, said the Federal Power Commission, are for the sale of electric energy at wholesale in interstate commerce within the meaning of the Federal Power Act. They fall within the federal jurisdiction, where the interests of both the producing and the consuming states are considered. *Re South Carolina Generating Co. Docket No. E-6585, December 20, 1956.*



### Commission Relates Return to Cost of Capital

CONSIDERING all the evidence on capital structure and cost of capital, the Pennsylvania commission found a 5.6 per cent rate of return on a water company's fair value rate base reasonable. The com-

mission commented that it should not attempt to arrive at any rigid conclusion either as to capital structure or as to related money costs. An expanding public utility's capital structure cannot remain

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fixed over any extended period, pointed out the commission.

The type and kind of securities issued by the utility to finance plant expansion are governed largely by conditions of the money markets at the time. It was possible that the actual capital structure of the company at any future date might correspond with any of the various capital structures advocated by the company, depending upon future market conditions. In the instant case, the commission accepted the lower money costs as applicable to present conditions.

### *Dissenting Commissioner Excepts*

Commissioner Houck, in a strong dissenting opinion, took exception to the majority's return allowance. There is a growing tendency to fix the cost of capital as a fair rate of return, he noted, apparently on the theory that cost of capital may be precisely determined. The "fallacy" of the approach was that actual cost of capital can rarely, if ever, be precisely determined. It is essentially a judgment figure or an estimate.

The cost varies substantially depending upon the weighting results from the capital structure. As an example, the commissioner referred to a table in the order. Upon a capital structure of 60 per cent debt, 15 per cent preferred stock, and 25 per cent common equity, the composite cost of money ranged from 5.495 per cent to 5.755 per cent. If the capital ratios were changed to 60 per cent debt and 40 per cent common equity, the composite cost would range from 6.07 per cent to

6.36 per cent. In almost every instance, the question of what capital structure should be accepted in determining cost of capital is a matter of judgment.

### *Capital Cost Not Synonymous with Return*

The dissenting commissioner pointed to the fact that the court had said repeatedly that capital cost and fair rate of return are not synonymous. There could be no question that the determination of fair rate of return involved the exercise of judgment.

There was probably no statistical evidence, commented the commissioner, which could be produced indicating a basis for an allowance for fair return in excess of the bare bones cost of capital, but there were cogent reasons why this should not be so. To cite but one, treating cost of capital as fair rate of return penalized the diligent and rewarded the incompetent.

The theory that every utility is required to render the best possible service might be sound theory, he contended, but is not in accordance with the practicalities of the situation. If the cost of capital is to be the rate of return, the rate allowed a utility which is a wastrel would far exceed the rate allowed the cautious and efficient one. There is something inherent in such a result which is repugnant to a sense of equity and, from the regulatory viewpoint, inconsistent with the rendition of the best possible service. *Pennsylvania Pub. Utility Commission v. South Pittsburgh Water Co. C. 16266, C. 16250, January 7, 1957.*



## Telephone Company's Denial of Service Upheld

THE New Jersey commission dismissed a complaint registered against a telephone company alleging refusal to serve. The company had averred that letters

from the chief of police had been received to the effect that service be denied in view of the criminal record of the applicant. The company argued that its action was

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in accordance with tariff regulations, that it not only had the right but the duty to deny service under such circumstances.

The company further contended that the complaint amounted to an infringement upon the acts of a public official in the performance of his duty and that the legislature had not granted jurisdiction to the commission to review the acts or actions of duly accredited law enforcement officials.

The commission agreed with the company's view. There was nothing in the

record to impugn the good faith of the chief of police. Although no evidence of gambling was uncovered by police surveillance of the premises in question during the period when the business was conducted by the applicant, the chief of police had good reason to believe that telephone service, if made available to the applicant, would be used for gambling purposes. The tariff regulation was reasonable and the company's denial justified. *The Lid, Inc. v. New Jersey Bell Teleph. Co.* Docket No. 9563, January 9, 1957.



### Consolidation of Telephone Exchanges Approved

THE North Carolina commission authorized Southern Bell Telephone & Telegraph Company to consolidate its Waco and Cherryville exchanges so that both might be served from the same central office. The consolidation would not result in local service rate increases for any subscriber in either exchange, and some subscribers would benefit by a reduction in mileage charges.

The existing dial office at Waco is one that cannot be further expanded and it is carrying an overload at the present time. In order to improve the service and provide equipment to take care of the expected future growth it would be necessary to purchase a lot, construct a building, and install an entirely new system. Serving Waco by extended cable facilities from the Cherryville office and adding dial equipment would, however, be cheaper both in terms of capital outlay and operating expenses.

A third method of improving service was submitted by a large number of Waco citizens asking that the exchange be consolidated with the Shelby exchange rather than the Cherryville exchange. Either of the three methods would suffice to bring good and adequate telephone service.

Comparative cost of each, however, indicated that the consolidation with Cherryville would be the most economical. It would cost \$24,500 whereas consolidation with the Shelby exchange would cost \$86,000, and it would cost \$32,500 to rebuild the exchange.

#### *Commission Duty*

The commission pointed out that while it has jurisdiction to regulate the rates and services of public utilities, it is not a director of their methods of doing business. It has the duty of seeing that the public receives good and adequate service at rates which are reasonable, while allowing the utility a reasonable return. The means and methods of providing that service are for management to determine so long as it exercises proper judgment and practices those economies which will tend to keep the cost of service as low as possible.

#### *Subscribers' Wishes*

In considering subscriber demands that the company consolidate with the Shelby exchange rather than with the Cherryville exchange, the commission said that in order for this demand to be reasonable it



## PROGRESS OF REGULATION

must appear that there is a necessity for the service that consolidation with Shelby will produce over and above that which the more economical method will supply, or that there is some great and necessary convenience that will be served. Conceding that some added convenience would be possible, the commission said that it must be kept in mind that calls can be made to telephones on the exchanges in the Shelby area, and to all telephones everywhere, but that what the petitioners were seeking was the privilege of calling "toll free" to telephones on these exchanges.

But, it said, the cost for all such service must be paid somewhere and by someone. Under its form of regulation, the entire system of any given telephone company is treated as a whole. Consequently each added investment and each item of expense, unless matched proportionately by added revenue, increases the cost of telephone service to every subscriber. When tolls are eliminated by the extended service method, this loss in revenue must be made up in telephone rentals, and the

extra investment to make possible the toll-free service must also be supported.

If extended service to the Shelby exchanges were put into operation and Waco subscribers were charged the extra rates to support them, it would result in a great increase of rates for these subscribers. The benefit would not go to all Waco subscribers because evidence indicated that only about 50 per cent of them made calls to those communities involved. The commission concluded that it would be unfair to require these who receive no benefit to pay extra charges to support the added service. It believed that the people were asking that an added service at great cost be given to a part of the subscribers who would use it only to a limited extent at the expense of all other ratepayers.

The commission concluded that the citizens of Waco are being given, or will be given, good extended area service such as their needs justify and the economies will support. It would be unreasonable to ask more than that. *Re Southern Bell Teleph. & Teleg. Co. Docket No. P-55, Sub 169, January 31, 1957.*

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## Other Recent Rulings

*Return and Rate Base for Water Utility.* The New Jersey commission granted a small water company a rate increase sufficient to afford a rate of return of 6 per cent on a net book value rate base amounting to only one-fifth of the property value claimed by the company on unsubstantiated testimony. *Re Grenloch Real Estate Co. Docket No. 9650, January 3, 1957.*

*Crossing Costs.* The state highway commission had authority to bind the state to pay installation and operating ex-

penses of a flasher light at a new or relocated highway railroad crossing, held the Michigan supreme court, where a statute provided that the full cost of constructing a new highway over an existing railroad, or of new railroad tracks over an existing highway, should be borne by the party requesting such crossing. *Chesapeake & O. R. Co. v. Michigan Pub. Service Commission, 79 NW2d 586.*

*Railroad Freight Rates.* The Missouri commission authorized railroads to increase Missouri intrastate freight rates by

## PUBLIC UTILITIES FORTNIGHTLY

an amount equal to the 5 per cent increase recently authorized by the Interstate Commerce Commission for interstate service in western territory, so that intrastate service might bear its proportionate share of rising costs, and in order that undue discrimination against interstate operations might be avoided. *Re Freight Rates and Charges, Case No. 13,566, January 4, 1957.*

*Telephone Rate Increase.* The North Carolina commission authorized a telephone company to increase rates which, according to the company's figures, would yield a return of 4 per cent and, according to the commission's estimates, a return of 5.77 per cent, such returns being lower than what the commission deemed reasonable. *Re Sandhill Teleph. Co. of Aberdeen, Docket No. P-53, Sub 4, January 10, 1957.*

*Telephone Rate of Return.* The Wisconsin commission approved a rate increase, as requested by a small telephone company, which will be sufficient to cover increased costs and afford a rate of return of 5.4 per cent on a net book value rate base. *Re Hazel Green Teleph. Co. 2-U-4706, January 10, 1957.*

*Criterion for Discontinuance.* The Missouri commission commented that a railroad's request for authority to discontinue an open agency station would be granted if there was no public need even though the company was operating at a profit, but if there was a public need, continuation would be required even though the operation was at a loss. *Re Missouri-K.-T. R. Co. Case No. 13,524, January 21, 1957.*

*Telephone Certificate.* The Illinois commission granted an application for a certificate of public convenience and necessity to operate a telephone utility business in an area previously served by a co-operative which had dissolved, upon a showing of public convenience and necessity. *Re Western Illinois Teleph. Co. No. 43513, November 8, 1956.*

*Working Capital Allowance.* The Illinois commission included an allowance for cash working capital and material and supplies in a telephone company's fair value rate base. *Re Palestine Teleph. Co. No. 43548, December 18, 1956.*

*Warehouses No Longer Public Utilities.* The Indiana commission dismissed an application for permission to transfer a certificate to operate public warehouses on the ground that, under a 1955 amendment to the Public Service Commission Act, elevators and warehouses are no longer defined as public utilities and the commission does not have jurisdiction. *Re Oren et al. No. 24989, October 19, 1956.*

*Exchange Area Modification.* The Illinois commission refused to delete from a telephone company's certificated territory a small unserved boundary area, upon the request of two complainants who lived there but desired more convenient service from another company, since the certificated company had offered to serve the complainants and it was not shown that the other company (which was not made a party to the proceeding) was willing and able to serve the area. *Longnecker et al. v. Palestine Teleph. Co. Docket Nos. 43722, 43723, January 22, 1957.*

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Exceptionally high contact pressure—provides maximum current-carrying capacity—cleans during operation.

Simplified, rugged factory-sealed ball bearing blade-actuating mechanism for smooth operation. Blade is locked in open and closed position.

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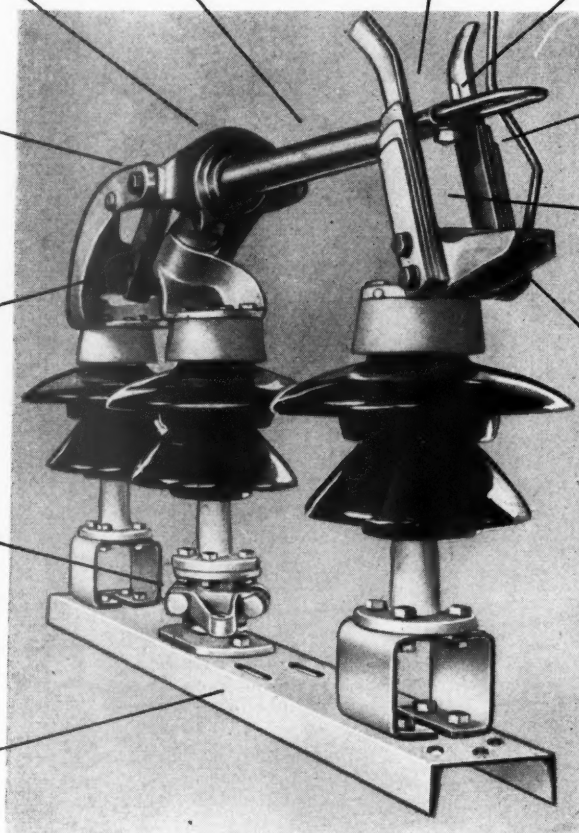
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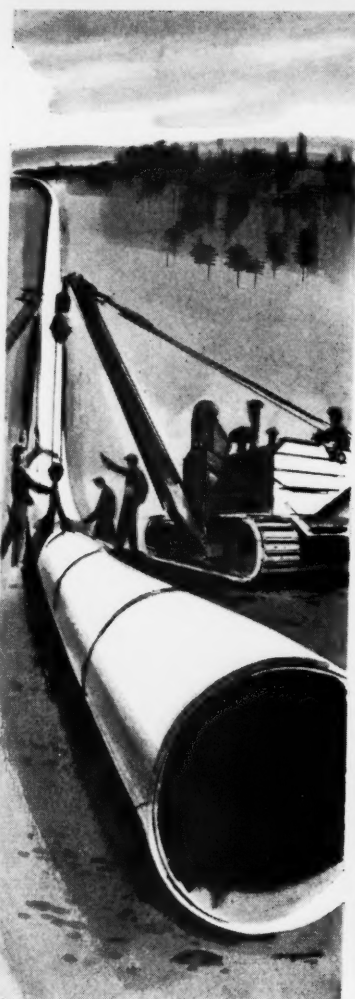
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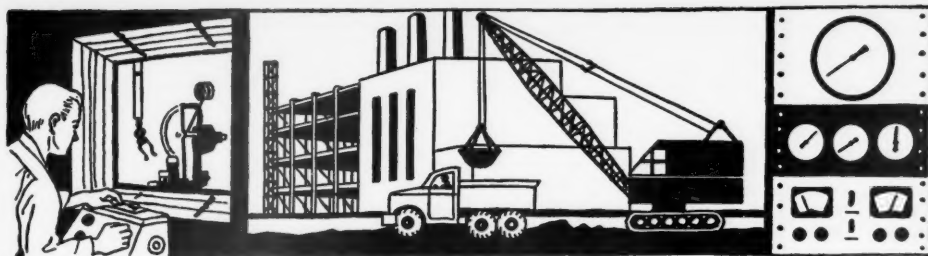
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PUBLIC UTILITIES FORTNIGHTLY, FEBRUARY 2





# Industrial Progress

## Electric Living Exposition Sponsored By Cincinnati Gas & Electric

THE electrical industry's "Live Better Electrically" program was translated into action recently in Cincinnati, Ohio, by a spectacular ELECTRIC LIVING EXPOSITION held in Cincinnati Garden. Said "to be the latest exhibit of residential electrical merchandise Cincinnatians have ever seen," the exposition drew record-breaking crowds.

The Exposition was co-sponsored by the Cincinnati Electrical Association and the Cincinnati Gas & Electric Company in cooperation with the three local newspapers. J. Reed Hartman, vice president of Cincinnati Gas & Electric, headed up the event. It is Cincinnati's first electrical exposition since 1939 and, held during National Electrical Week (February 14-16), helped to commemorate Edison's invention of the first incandescent bulb on the 110th anniversary of the inventor's birth at Milan, Ohio.

At the heart of the exposition were booths displaying myriads of items that help Americans to a better electrical standard of living. More than 100 local and national companies displayed thousands of different electrical appliances and devices and applications of electricity in modern living. Virtually every "name" manufacturer in the electrical field was represented. Displays included electrical aids for every room in the home and outdoor recreational areas. All-electric kitchens were shown. Trained home economists demonstrated the revolutionary electronic oven. Home entertainment was represented by leading models of conventional and color television sets, high-fidelity systems and radios. Latest wood and metal working equipment were displayed for the

handyman. Other displays gave lighting advice for home and outdoors, hints for home sewers and other information of interest to the housewife. Many of the exhibitors distributed pamphlets and souvenirs to persons visiting their booths. Daily awards totaling \$100 were given and an additional \$100 was awarded on the final day.

In addition to the display of electrical goods, one of the many novel features of the 1957 exposition was a 16-by-16-foot transparent plastic "Home in the Clouds," which was suspended from the ceiling of the exposition hall. The lofty home was equipped with the latest in electrical appliances and was occupied for three days of the show by each of three married couples selected by Cincinnati newspapers. Each of the couples received electrical appliances valued at more than \$1000.

The exposition committee went "all out" to promote the event. All three Cincinnati newspapers featured the exposition with daily stories and pictures. Community papers also kept their readers posted. Cincinnati's Mayor, Charles P. Taft, proclaimed the week "Electric Living Week" in Cincinnati, and was joined by 60 mayors of surrounding communities who also proclaimed the week in their cities and villages, urging residents to see the ELECTRIC LIVING EXPOSITION. The show was open daily from February 9th through the 17th. Admission and parking were free.

## Live Better Electrically Promotions Outlined at Closed-Circuit Telecast

ACTIVITIES for 1957 planned for the electrical industry's Live Better Electrically program were highlighted January 30th at a closed-

circuit telecast beamed "live" from New York City to 53 cities from coast to coast.

Announcement of a series of full-scale advertising and promotion pushes to coincide with the peak selling seasons of the year was made on the telecast to some 40,000 members of the electrical industry.

Plans for these peak promotion periods include national advertising in a selection of mass-circulation consumer magazines; a heavy trade magazine schedule; and a series of network television commercials.

In addition, special promotion kits and merchandising aids, prepared to fulfill the specific needs of manufacturers, utilities, dealers, distributors, builders, contractors, bankers and other trade allies, will be distributed.

Kits will include information on the Live Better Electrically ad mat service, radio and TV materials, hand-out literature, point-of-sale displays, envelope stuffers, stickers and designs for model home site signs.

The telecast also previewed film clips from a new consumer movie, "Something Wonderful Happens," produced by the Live Better Electrically program for local showings during 1957. The 20-minute, four-color film will be made available to women's groups, civic organizations, service clubs, church meetings, demonstration classes and schools through the nation's electric utilities.

The closed-circuit television show was produced by Theater Network Television and starred John Daly and Gisele MacKenzie under the direction of Marc Daniels. The same producing company and the same trio of personalities were responsible for the success of a closed-circuit telecast early in 1956, when the Live Better Electrically program was first introduced to the electrical industry.

(Continued on page 22)



## INDUSTRIAL PROGRESS—(Continued)

The "Live Better Electrically" program is an industry-wide mass-market development effort to boost the use of electricity in the American home, by promoting the benefits of electrical living. The program is spearheaded by more than 300 electric utilities, which provide leadership and coordination for all promotional activities within their own service areas. Over 39 leading electrical manufacturers and 15 trade associations have supported the program vigorously.

The Live Better Electrically program has four broad long-range objectives. These are:

1. To increase and accelerate growth of the residential market for all electrical goods and services.
2. To vitalize the interest of the entire industry and its trade allies — manufacturers, electric utilities, bankers, builders, electrical contractors, electrical dealers, wholesalers and distributors, realtors and architects—in promoting the benefits

of electrical living to boost their own volume.

3. To dramatize to the American home-owner the high standard of living electricity makes possible.
4. To double the use of electricity in the average home during the next five years.

### Arizona Public Service to Spend \$21,000,000 in 1957

ARIZONA Public Service Company's board of directors recently approved a 1957 construction budget amounting to nearly \$21,000,000, according to John Jacobs, chairman of the board. Mr. Jacobs said that the largest expenditures in the utility's 1957 budget would be nearly \$14,500,000 for the company's electric system.

Of this figure, Public Service has earmarked approximately \$550,000 to begin construction of a power plant in the Yuma area. Also included for generating plants is \$300,000 to be spent on initial phases of construction of the utility's new Ocotillo steam

plant to be located near Tempe.

New and improved electric distribution facilities during 1957 will cost \$9,300,000 or nearly half the total construction budget expense. New electric transmission lines throughout the state will cost more than \$1 million.

Major gas system expenditures budgeted are more than \$1 million for gas main extensions and a large amount for gas services to new natural gas customers that will be added during the coming year. The company has set aside \$650,000 for gas meters and regulators and \$450,000 for major tie lines on the company's gas system.

Included is \$1,177,000 for the new Univac system recently purchased by Public Service. The remainder of the total figure involves expenditures to improve company property throughout the utility's 40,000 square-mile service area.

### Central Hudson Gas & Electric Corp. Announces \$50,000,000 Program

CENTRAL Hudson Gas & Electric Corporation will spend a record \$50,000,000 during the three-year period through 1959 to meet increasing demands for electricity and natural gas. It was announced recently by Ernest R. Acker, president.

In 1957 alone, the company's construction budget calls for the expenditure of more than \$15,300,000. This is the largest construction budget in the company's history and is about double the amount spent in 1956.

The largest single project included in the company's three-year construction estimates is a third generating unit at the Danskammer point station. The new unit will raise the station's total net capacity to approximately 278,000 kilowatts and will cost approximately \$23,400,000. On this amount, the company expects to spend about \$3,150,000 in 1957. Construction will begin this spring and the unit is scheduled to be placed in operation in the fall of 1959.

Central Hudson supplies natural gas and electricity to a 2500-square-mile area between Westchester County and Albany with a population in excess of 300,000.

"We are entering a new phase in our electric production expansion program with the construction of the new Danskammer unit," Mr. Acker said. (Continued on page 24)

## WATER AND SEWER ENGINEERS

### DESIGN — CONSTRUCTION — OPERATION MANAGEMENT

The Philadelphia Water Department is seeking engineers with ability and experience in all phases of work in the operation of a large scale modern water and sewer utility.

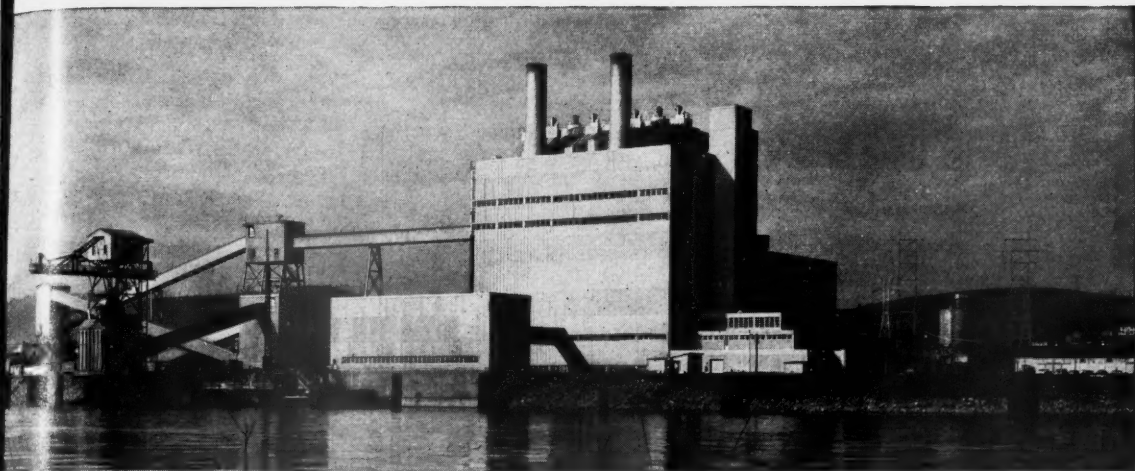
You will have opportunity to work on large scale projects and creatively participate in new developments and advanced techniques of operation and management.

We offer full professional recognition and the personal benefits of an important position with a major metropolitan utility.

Mail this ad with your name, address, and area of interest or write directly to

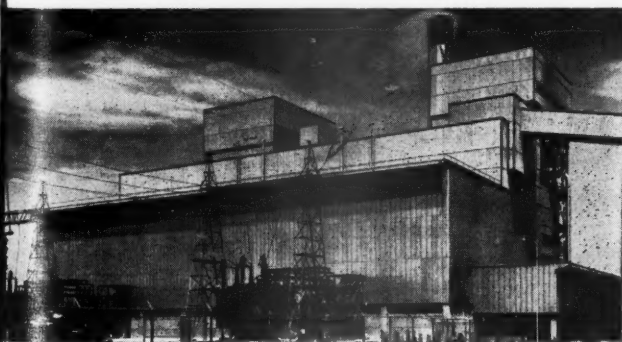
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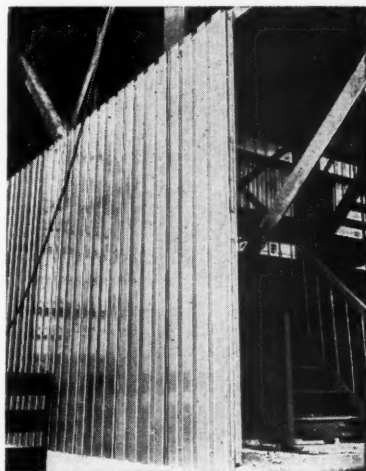


## Why fine new power plants everywhere have Q-Panel Walls

Builders of new power plants in all parts of the country have specified Q-Panel walls for the following very good reasons: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12" masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below and write for literature.



Q-Panel walls grace the new Elrama Power Plant (above) near Pittsburgh. It was designed by Duquesne Light Company's Engineering and Construction Department. The Dravo Corporation was General Contractor.



Q-Panel walls (above) go up quickly in any weather because they are dry and hung in place, not piled up.

More than 32,000 sq. ft. of Q-Panels were used to enclose the impressive Hawthorn Steam Electric Station (left) of the Kansas City, Missouri, Power and Light Company. Ebasco Services, Inc., designed and built the plant.



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THAT TREE LAWN is really *narrow* but the compact maneuverable 92 is doing a neat job of digging from driveway to driveway. The operator sets in and lifts out the digging wheel with speed and safety because the 92 gives him full job visibility and fast accurate boom hoist control. Synchronized wheel and conveyor speeds permit precision placement of spoil. No damage to curb, sidewalk or driveways either, thanks to the 92's perfect balance on long, smooth, non-clog crawlers—a real public relations asset.

★ Only 54" wide over crawlers

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★ Portable, at legal limit speeds

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### INDUSTRIAL PROGRESS

(Continued)

said. "At the same time," he added, "we are continuing to extend and reinforce our electric and gas transmission and distribution systems. The high rate of new service connections and the increased usages by residential, commercial and industrial customers have created record demand on both the electric and gas systems," he concluded.

The second largest item in the utility company's 1957 budget is \$2,000,000 for laying a 50-mile natural gas transmission line from Kingston, N. Y., to a point near Albany, N. Y., in connection with Tennessee Gas Transmission Company facilities. This will provide a second source of natural gas supply for Central Hudson and, in addition to reinforcing its existing gas system, will help meet the increased gas requirements of the rapidly developing Kingston-Saugerties-Catskill area.

After allowing for expenditures on the two major projects and \$1,000,000 for the completion of the additions to the company's Poughkeepsie South Road general office buildings, the budget of about \$9,000,000 remains for normal reinforcement and expansion of the company's facilities in 1957.

### Concord Telephone Opens New Dial System and Exchange

THE Concord Telephone Company of North Carolina has put into service a new million dollar dial service and exchange building at Albemarle, thus completing a dial network of four exchanges serving more than 7000 subscribers in Stanley County, North Carolina. Provision has been made for direct distance dialing of toll calls in the near future.

Albemarle will become a tributary office of the company's toll center at Concord. The new equipment, manufactured by Automatic Electric Company, includes transistorized negative impedance voice frequency repeaters at about the halfway point in the cable between Albemarle and Concord to further insure quality reception. The two cities are 23 miles apart.

The Albemarle network's subscribers now have extended area (toll free) service with each other. Unattended exchanges of Strowger automatic equipment were previously installed at Badin, Oakboro and New London.

The new Albemarle exchange building is designed to handle switch-  
(Continued on page 26)

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## WITH PEAK MOBILE RADIO POWER



- ★ 100 WATT POWER OUTPUT
- ★ MAXIMUM RANGE
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- ★ TOP RECEIVER SENSITIVITY

Motorola "TWIN-V" radiophone—with highest power, to push the range of your VHF radio system to its maximum—to optimize mobile-to-base and mobile-to-mobile communications in the farthest fringe areas.

Here peak receiver sensitivity combines with highest transmitter output to assure dependable

reception of all communications. Advanced design provides full 100 watt rated output. Yet the economical battery drain is comparable to conventional 60 watt equipment—plus full 6/12 volt interchangeable operation, without changes or modifications, for obsolescence protection in mixed fleets.

*The 25-54 mc. 100 watt mobile radio equipment includes all the forward-looking engineering of the "TWIN-V" radiophone line:*

- Conservative long-life design
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These and many other features have made "TWIN-V" radiophone the choice of most mobile radio users—features which become more strikingly evident as experience continues to prove their merits.

And Motorola is your complete supplier—with the proper equipment for every radio system, plus parts, maintenance, financing, service and engineering available for every application. Write, phone or wire—TODAY!

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*Motorola consistently supplies more mobile and portable radio than all others combined.*

*Proof of acceptance, experience and quality.*

*The only COMPLETE radio communications service—specialized engineering... product... customer service... parts... installation... maintenance... finance... lease.*

*"The best costs you less—specify Motorola."*



ing equipment and other facilities to accommodate 20,000 telephones and can be enlarged to more than four times that size. Dr. W. C. Houston, president of the company since 1897, pointed out that the number of telephones in Albemarle has increased from 554 to more than 5500 since the property was acquired in 1934.

### 23rd Annual EEI Sales Conference To Be Held in Chicago April 1-4

THE 23rd Annual Sales Conference of the Edison Electric Institute will be held at the Edgewater Beach Hotel, Chicago, April 1, 2, 3 and 4, 1957, it has been announced by T. O. McQuiston, chairman of the EEI Commercial Division Executive Committee and vice president of the Metropolitan Edison Company.

Over 1000 top level sales executives of the electrical industry will attend the Conference, highlights of which will come on April 3rd and 4th when the General Sessions will be held. These sessions consist of speeches by some of the electrical industry's outstanding personalities, as well as those in allied fields. Particular attention will be paid by the speakers to the promotion of and problems in the sale of electricity.

The Conference will open on April 1st with meetings of the 22 EEI Commercial Division Committees. On April 2nd the four groups of the Institute—Commercial, Farm, Industrial and Residential—will hold their group meetings. Consisting of morning and afternoon sessions, important figures in the respective fields will speak on subjects of importance to all in the electrical industry.

The General Awards Luncheon will be held on April 3rd. The annual prize awards will be given at that time to the winners of the awards contests, held to honor outstanding promotional activities by electrical utilities.

Awards are: George A. Hughes Awards (electric ranges and water heaters; commercial electric cooking), Laura McCall Awards (home service), George Westinghouse Awards (electric laundry equipment), More Power to America Awards (industrial electrification), Martin Award (rural electrification), Lighting Education Awards (lighting education), Lighting Promotion Awards (lighting promotion), and Frank Watts Awards (rural electrification).

Other events at the Conference will include a Farm Luncheon on April 2nd, at which Charles B. Shuman, president, American Farm Bureau Federation, will speak on "Farming With A Future," and a General Luncheon on April 4th, featuring a Live Better . . . Electrically program.

### South Carolina Electric Plans \$29 Million Outlay

SOUTH Carolina Electric & Gas Company will spend about \$29,000,000 on new construction this year, according to S. C. McMeekin, president.

The 1957 expenditure is part of a \$75,000,000 construction budget for 1957 through 1959 approved by directors of the company which serves 23 central and southern South Carolina counties.

About \$16 million of the 1957 allocation will be spent on a new steam generating plant under construction near Columbia. Originally, the company planned a single 137,500 kilowatt generator at the plant, but now the company intends to add a second similar unit. The first new unit is scheduled to go into operation in June of 1958 and the second will be turned on about three months later, Mr. McMeekin said. Effective generating capacity of the utility now is about 615,000 kilowatts.

### Washington Water Power Co. Plans Record Building Outlay

WASHINGTON Water Power Company will spend a record \$36,000,000 on construction programs this year, according to Kinsey M. Robinson, president.

This year's budget compares with a construction budget of \$22,500,000 last year.

About \$23,000,000 of this year's budget will be spent on construction of the Noxon Rapids dam on the Clark Fork river in northwestern Montana. The company is investing a total of \$84,000,000 on the Noxon Rapids project to double the company's power output.

About \$5,000,000 will be spent on projects in the Spokane division. More than \$3,200,000 has been allocated for general plant improvement, including \$2,300,000 for 1957 construction work on a general office building in Spokane.

More than \$4,000,000 will be spent on expansion and improvements to

the 7,000-mile distribution network which now serves nearly 139,000 customers.

### Power Conference to Discuss Atomic Power Development

ADVANCES in atomic power development will be described at the 19th annual American Power Conference at the Hotel Sherman in Chicago, March 27-29. Among the papers to be presented is a "Comparison of American and Foreign Technology in Peacetime Development of the Atom for Power" by Dr. Walter H. Zinn, president of General Nuclear Engineering Company and former director of AEC's Argonne National Laboratory.

The conference is sponsored by the Illinois Institute of Technology in cooperation with 14 universities and nine national and regional technical societies. The three-day program will include 25 technical sessions, an AEC Engineers dinner on March 28th, and three luncheon meetings.

More than 3,000 executives, scientists, engineers, educators, and government officials are expected to attend, according to conference director R. A. Budenholzer, professor of mechanical engineering at Illinois Tech.

Speaker at the dinner, which is expected to be attended by 1,200 persons, will be Gwilym A. Price, president of Westinghouse Electric Corp.

The luncheon speaker on March 27th will be Donald S. Kennedy, president of Edison Electric Institute and of Oklahoma Gas and Electric Company.

The March 29th luncheon will be addressed by Gordon M. Freeman, president of the International Brotherhood of Electrical Workers. The March 28th luncheon speaker will be announced later.

A feature of the 1957 conference will be an evening symposium on March 27th on training and utilization of technical manpower.

A highlight of the technical sessions will be discussions of high-temperature, high-pressure power plants and high-voltage transmission by speakers from England, France and Switzerland.

One or more sessions will be devoted to each of a wide variety of subjects, including home heating with electricity, use of heat pumps and

(Continued on page 28)



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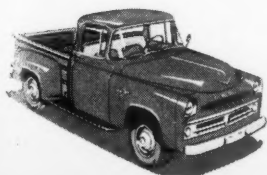
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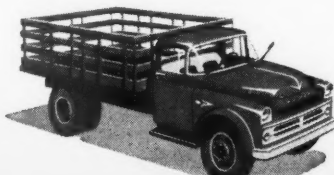
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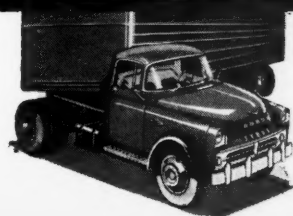
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900	30,000 lbs.	65,000 lbs.	232
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Inquiries concerning the conference should be addressed to E. R. Whitehead, Secretary, American Power Conference, Illinois Institute of Technology, 3300 Federal St., Chicago 16, Illinois.

### Westinghouse Expands Commercial Atomic Power Facility in Pittsburgh, Pa.

WORK has started on an addition to the main building of the commercial atomic power activities (CAPA) organization of Westinghouse Electric Corporation in Pittsburgh, Pa.

C. V. Roseberry, manager of CAPA, said the new one-story wing will include approximately 12,000 square feet of laboratory space which will be devoted entirely to development work on commercial atomic

power projects.

Among the first projects to be handled in the new building, which will be completed in about six months, will be work on the homogenous-type nuclear reactor being designed by Westinghouse and Pennsylvania Power & Light Company of Allentown, Pa.

Mr. Roseberry explained that the CAPA operation, which was formed in September, 1955, includes the development, design and sale of commercial nuclear reactors.

### Experimental Nuclear Power Plant Placed in Operation February 9

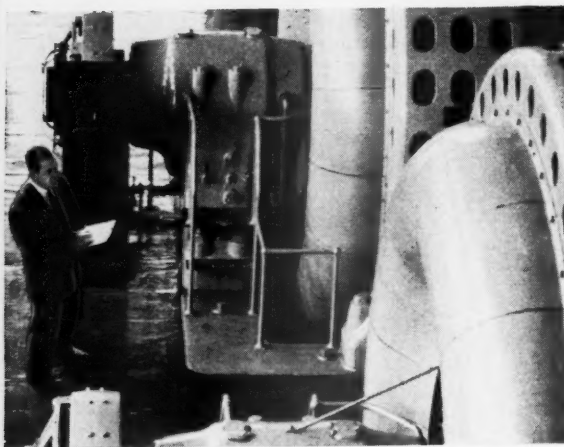
THE first nuclear power system in the United States designed and built solely for experimentation in the generation of electric power was formally put into operation at the Atomic Energy Commission's Argonne National Laboratory on February 9th.

The EBWR (Experimental Boiling Water Reactor) having undergone pre-operational tests went into continuous full power operation Feb-

ruary 9th, supplying 5,000 kilowatts of electric power to the laboratory. Members of the Joint Committee on Atomic Energy of the Congress, officials of the Atomic Energy Commission, members of the staff of Argonne National Laboratory, and representatives of the University of Chicago which operates the laboratory attended the ceremony.

The reactor project is unclassified. A switch thrown on February 9 sent the power from the nuclear reactor into the electric distribution system of the laboratory. It is expected that the plant will meet the major portion of the electricity requirements of the laboratory. No electricity generated by this plant will be sold for commercial use. The EBWR will be used by the laboratory for further studies of boiling reactors and to evaluate their possibilities for large-scale power application.

Of the original five reactor projects in the AEC civilian power reactor development program launched in 1954, the EBWR is the first to be completed and to generate electricity.



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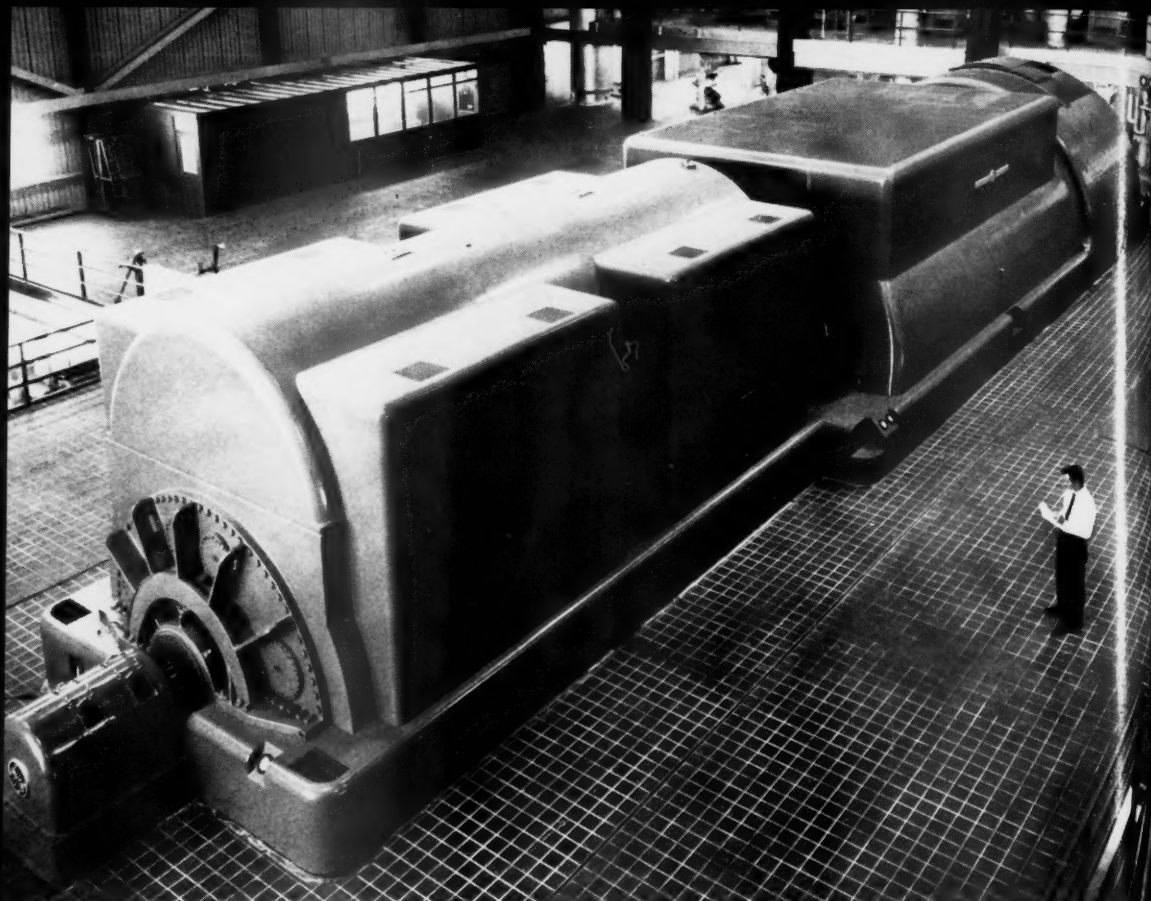
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